

Std D film sharpest 16- $\frac{1}{25}$

1st no = 3115

No. 20.

W.L. Jackson.

Field Book
of
Willis L. Jepson

-- 1909 --

If lost finder please return
to Dept of Botany, University
of California and receive
reward. - W.L. Jepson, Berkeley
California.

2 El Portal, July 3.

- For the first time I am going with the Sierra Club on its outing. The party goes from El Portal to Yosemite. Thence to Lake Merced, Tuolumne Meadows, Matthehorn Cañon, Hetch-Hetchy, Merced Grove, Big Trees and El Portal.

3 El Portal, July 3, 09.
2100 ft. alt.

Trees & shrubs noted here.

- Maul Oak, 25 ft.
- Red Bud. Buckeye.
- Live Oak. Valley Oak.
- Digger Pine, straggling yellow pine; plenty on slopes above.
- Poison oak. *Rhamnus californica*
- Yerba Santa, fairly common.
- Sweet Shrub, in flower.
- *Ceanothus integrifolius* H. & A.
- Maul Oak - one mile from El Portal, Merced Cañon, the upper part of the cover on the sharp cañon wall for 1200⁵ feet is Maul Oak, - Broad-leaf cover - no pines.

El Portal to Pulpit Rock

2100 ft. - along Merced River, - 3500 ft.

- Laurel
- Mustang Mint in fl.
- Maul Oaks branching low and broad-headed, at most 40 to 50 feet high
- ✓ No. 3123. ^{† Staphylea bolanderi Gray.} Bladder Nut. Clump-like bushes, several stems from the ground, 6-8 ft. h.
- Torreyia Californica - individuals rather frequent along the Merced River from El Portal. Stump-sprouting. Trees leaned over in the wood-making have feathers out along the trunk from the ground up - such trunks about 1 ft. diam. Tallest seen = 25 ft. Most of them 10-15 ft. h.

July 3, 1909

- Douglas Fir first seen about five miles from El Portal.
- Torreyia Californica, one tree or bush about every 100 yds on the average between El Portal and Pulpit Rock. In some places every 10 feet. Fruiting very abundantly. The green fruits shining like plums unripe. No wonder people ask about the "plum trees"! hortwegii Baker.
- ✓ No. 3123A Iris / dry rocky place under thin stand of Yellow Pine and Black Oak.
- Fraxinus Oregonica. One tree noted, but was not looking for them, especially.

July 4, 1909

Yosemite Valley, Trees & shrubs.

- Yellow Pine
- *Abies concolor*
- *Populus trichocarpa*, 70-80 ft.
- *Azalea occidentalis*, in fl!
- *Aspen macrophyllum* Pursh.
- *Quercus californica* (Kelloggii)
- *Libocedrus decurrens*
- *Pinus lambertiana* Dougl.
- *Pinus murrayana*, one tree in El Capitan meadows this foliage but striking for being full of cones which are open and blackened.
- *Cornus nuttallii*, 30 ft. h, stump-sprouting freely.
- ✓ No. 3123 *Geranium incisum* Nutt.
Petals pink, purple veined, the

4060 ft Yosemite Valley

- rim branching above, densely hairy with soft short spreading hairs at base on upper side.
- *Kelloggia galioides*, in fl.
 - Black Oak, the only oak on the floor of the valley; it is common.
 - *Prunus demissa*, near Royal Arches, in middle of valley!
 - *Lonicera conjugialis*, in fr!
 - *Alnus rhombifolia* - on the Happy Isles.
 - *Achillea millefolium*
 - *Heracleum lanatum* Michx.
 - *Taraxacum californicum* near Happy Isles.
 - Cal. Laurel, common near Happy Isles on ^{dry} hillside.
 - *Circaea pacifica* - Varma Hall.

mariposa Co
 Little Yosemite
 (6300 ft.)

exceeding calyx tube except by
 the spreading limb. Corolla
 scarcely more than one line
 broad in the limb. Little Yos.

No. 3145. *Heterocodon rari-
 florum*. Little Yosemite

No. 3146. *Navarretia divaricata* (Torr.)
 Little Yosemite ^{Greene}

No. 3147. *Senecio* ^{integerrimus Nutt.} ^{var. sp. (S. Webb)}
 Dry sandy
 hillside. Little Yosemite.
 Dry sandy hillside

No. 3148. *Cichoriaceus*. Little
 Yos.

No. 3149. *Phacelia heterophylla*
 The two preced. in dry
 sandy soil. = *P. griseophylla*
 = *Horkelia fusca* Lindl. (Brand)

No. 3150. *Polentilla*. Dry
 Sandy soil on
 hillside: *P. douglasii* Greene
 var. *tenella* Greene.

July 5, 1909

Triteleia ixioides Greene

Lugens Greene.

No. 3151. *Brodiaea* ^{dry sandy}
 hillside

No. 3152. *Eriogonum spergulinum*.

no. 3152a. ^{var. *Spergulinum*}
Eriogonum nudum var. *nudum*

No. 3153. *Lupinus* " "
^{confertus, Keck.}

No. 3154. *Gilia leptalea* " "
^{ssp. *Leptalea* Greene.}

Corolla lavender, with a
 bluish tint in the purple-
 lines. throat with its

Limb spreading up from throat
 campanulate - wise
 Little Yosemite

No 3155. *Orthocarpus lacernus*
 Sacs about as deep as high,
 clear lemon yellow, one small
 purple dot at base of each tooth.
 galea straight. Little Yosemite.

- Cont. no. 3139. *A. rectissima* Greene.

Little Yosemite to
(6300 ft.)

No. 3156. Grass. *H. brachyantherum* Nevskii. [Det. Brecher
Crampton, Jan. 1973]
Hordeum nodosum.

- Londerbach says there was
at the end of the Miocene
a tremendous series of earth
movements inaugurated on
the Californian coast. The
movements as late as the Quaternary
are sufficient to account for
the entire disappearance of trees
on certain of the Santa Barbara Isl.
and of lowest altitudes.

No. 3157. *Potentilla*. Petals
nearly white (a tint of cream)
orbicular. Stamens 25
Little Yosemite. = *P. glandulosa* Bingley
var. *lactea* Greene.

No. 3158. *Streptanthus*
orbicularis hillsides. = *S. Farlowii*
Kell. Little Yosemite. Hillsides

No. 3159 *Aster* *Erigeron breweri* Gray var.
Little Yosemite. *breweri*

Echo Creek, July 6, 1909.

Carex fracta Mackenz. Det. K.K.M.

No. 3160 Sedge. Little Yoe.
Just Chlorophyllus Engelm. Det. Engelm. Hillsides
No. 3161. Rush. Beautiful species
in flower! Not sprung. Little Yoe.
Hillsides

No. 3161 A. *Mimulus* Rather
dry hillside under pines, the plants
a little scattered. Herbage clammy.
Hillside just above Little Yoe.
Mimulus moschatatus Dougl. var. *longiflorus*
Gray. Det. A. L. G.

No. 3162. *Silene lemmonii* Wats.
Petals 4-fid into slender lanceolate
lobes (4). Two teeth (oblong-lanceolate) at
base of each limb. 5 stamens
(long-exserted) in anthesis when
other parts are held at mouth of
calyx tube. Then the first-five
curl down and the second 5
elongate. Anthers green. Herbage
glandular. Hillside just above Little Yoe.

Little Yosemite to Echo Creek
via Sunrise Trail, (9500 ft.)
Merced River

- climbing the Sunrise Trail I had my first view of Mt. Clark which is a sharp peak rising boldly above the south side of the Merced Cañon south of Merced Lake. It was named for Clark by Whitney. All the State Survey men knew Clark well. Clark's Station is now Kawona, the Indian name for Big Tree. When Muir came into the Yos. Valley in 1867 he went to work for Hutchings at \$7000 per mo. to build a sawmill. There was a lot of fallen timber and this was to be sawed up. Muir had merely a straight saw but his mill did

July 7, 1909

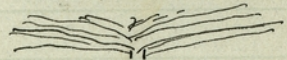
effective work, sawing up yellow pine logs into boards broad enough for Hutchings' doors. Clark, too, must have a sawmill at Clark's Station but he went into it on too big a scale and lost everything. He had a circular saw with various machinery that made things too complicated for so removed a place and the little demand for lumber.

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- *Mimulus floribundus* var. *subulatus* Grant. No. 3143. See p. 9. Det. A.T.G.
 - *M. nasutus* Greene. No. 3134. Det. A.T.G. See p. 9.
 - *Oenothera biocolor* T. & G. No. 3132. See p. 8.

Little Yosemite to Echo Creek,
via Sunrise Trail (8000 ft.)
Mered River

No. 3163 *Collinsia*

Lower lip indigo blue; upper lip whitish, the throat just where it breaks into the limb with two ^{incurving} horn-like processes forming a little roundish passageway into the throat. Herbage glandular. Half-way to summit of Sunrise Trail from Little Yosemite to Echo Creek

No. 3164 *Ceanothus cordulatus* ^{Walt.}
Plants 2-4 feet high, spreading as fashion  but not decumbent, recumbent nor reclining, the branches spreading horizontally or ascending a little.

~~Marysville Co.~~

July 7, 1909.

But the branches may become decumbent in age. One bush may form a mat 10 or 15 feet across. People put their camp beds on them. Half way to summit Sunrise Trail from Little Yosemite to Echo Creek.

No. 3165 *Mitella Breweri* ^{Gray.} Petals with about 3 pair of lobes ^{hair-like,} spreading at right angles to the rachis. Stamens inclined, set on calyx disk. Calyx-disk flattish or low saucer-shaped. Sepal lobes very obtuse. Short style-branches spreading at right angles to column.

Little Yosemite to Echo Creek
via Sunrise Trail (8500 ft.).
Merced River

Each 2-lobed, the lobes turned downward and divergent.

(somewhat)

- John Muir says: Dr. Gray, Sir Joseph Hooker and I were in camp at Mt. Shasta. Around the camp-fire Dr. Gray said: Why haven't you found *Linnaea borealis* in California? It's sent me from Oregon, well, said Muir, I don't know. I haven't seen it. The next morning Gray went off in one direction, and Sir Joseph and Muir in another on horseback. Crossing a little gully, Sir Joseph said what is that? A low plant covering a bank, not in flower, yet looking strangely familiar. It proved to be *Linnaea*! Strange that it should have been found so soon after Gray's remark.

Mariposa Co.

July 7, 1909

- *Caryocarpus Leichtlinii*
- No 3166. *Allium tribracteatum* Torr.
Flowers white (dull) with a broad
band down the middle of the back
brown of each segment. Ovary lobed
when from above appearing
so, .

One flower teratological, 10 per.
segments!, 10 stamens & distinct,
2 laterally conjoined by filaments.
In granite sand, much the
color of the hillside.

Nos. 3167-3176. Omitted using
inadvertently.

Sunrise Trail.

(8500 ft.) Merced River.

- Aspen, first noted along Merced River above Nevada Falls. Takes place of Black Cottonwood in Yos. Valley
- Jeffrey Pine, Nevada Falls and above. Rusty, red bark
- *Juniperus occidentalis*, Nevada Falls & above, occasional.
- Black Oak scattered through pine forest up to 8000 ft.
- Brown Spruce - a man by name of Bienenfeld, Grad. U.C. and engineer says he found a spruce with horizontal branches and pendulous euds on Castle Crags when he railroad was building (about 1883). This may be near the Castle locality of Frank B. Kellogg.

July 7, 1909.

No. 3177 *Linanthus ciliatus*
Gilia

Corolla pink, each lobe with one purple spot near base.

Yellow throat. Under pines & firs.

Sandy soil. Well towards summit Sunrise Trail.

- *Pinus monticola* along upper part - Sunrise Trail to divide, 5, 6, 7! cones in a cluster!
- Red Fir, plentiful with it. Beautiful red-brown trunks with heavy furrows such as you could stick your hand into.
- *Pinus jeffreyi*. rusty - red trunk type in fine fettle.

Sunrise Trail to
and Echo Creek Trail

Gilia leptalea Greene. (9000 ft.)
ssp. *leptalea*

✓ No. 3178. *Gilia leptalea* Greene. ssp. *leptalea*
not far below summit of
divide, on granite triturated.

✓ No. 3179. Currant. Echo Creek with
preced. *Ribes montigenum* Mc.

✓ No. 3180. *Streptanthus orbic-*
ulatus ^{Greene}. On triturated granite.
at Lake Merced. = var. *orbiculatus* Hall.

✓ No. 3181. *Oenothera*, at Lake
Merced.

✓ No. 3181 A. *Clarkia rhomboides*
Dougl.

Madripan Co.

Lake Merced, July 8, '09
(7200 ft.)

✓ No. 3182.

✓ *Sedum*. On granite. Sepals
lavender-brown, forming by
position a tube enclosing lower
portion of petals, the upper
portion of petals spreading.
Very common. *S. obtusatum* Gray.

✓ No. 3183. *Eriogonum prattenianum* Dur.
light sulphur yellow fls.

Lake Merced, on granite glaciated.

✓ No. 3184. ^{*Lappula*} *Echinosperrum* ^{*L. chin.*} *flori-*
^{*Sundum*} *bus* ^{*Var. jessicae*}
Fls. blue* Meadow Lake Merced.

No. 3185. *Delphinium* ^{*depauperatum*} ~~*patens*~~ ^{*Benth.*}
Meadow, Lake Merced.

✓ No. 3186. *Myethia* ^{*mollis*} ^{*Gray*} Flat at Lake
Merced. Herbage glandular but just
why is not obvious with my lens. Pappus
teeth 2, 3, 4, and long as scales, or short, or over-

* Old Wedgewood China Blue; some-
times a pink fl. just as in
Cynoglossum grande.

Lake Merced (7200 ft.). Yosemite.

- No. 3187. *Zygadenus venenosus* Wats.
Per. segments white, short-but
distinctly clawed, base of
blade ^{limb} with large yellow gland.
On thin-soil over granite.

Trisetum ^{*spicatum* (L.) Richt.}
~~*condanum*~~

- No. 3188. Grass } Granite clefts.
No. 3189. Grass. Clefts in granite.
Rootstock threads connecting tufts! *Stipa occidentalis*

[No. 3186. See preced p.]

Leaves sticky both sides;
the glands are fine pin-
point structures.

- No. 3190. Grass. Granite sand.
Poa scabrella Benth.

July 9, 1909.

- No. 3191. *Populus tremuloides*.

The finest grove in California is at a meadow bordering the upper end of Lake Merced. The trees form a pure grove save for a few huge *Abies concolor*. The following were measured.

	circ at 4 1/2 ft.	Height.
No. 1.	3 ft. 9 in.	
No. 2.	3 ft. 3 in.	60 feet
No. 3.	4 ft. 1 in.	75 feet
No. 4.	4 ft. 2 1/2 in.	80 feet
No. 5.	4 ft. 9 in.	65 feet.
No. 6.	5 ft. 1 1/2 in.	75 feet.
No. 7.	5 ft. 6 in.	65 feet.
No. 8.	4 ft. 3 in.	75 feet.

Trees about the margin of Lake Merced are standing in water 1 or 2 feet deep. They "stand" water like their cousins, the willows.

Lake Merced (7200 ft).
Yosemite,

No. 3192. *Fragaria* ^{platy petala Rydb.} ~~virginiana Benth.~~ ~~platy petala Hall.~~

Under *Pinus jeffreyi* and
Abies concolor. Needle bed.

River flat of the Merced.

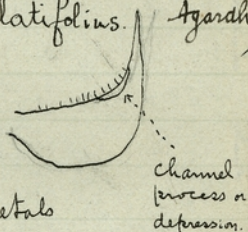
Teratology - one flower with
4 petals and 4 calyx-lobes!
(In lot of single fls.).

No. 3193. *Lupinus latifolius*. Agardh.

at the angle of the keel
there is a sort of
fold or depression

as if one of the keel-petals
were folded in at that

point. But turning the keel
over one sees that the same
process is on the other side.



July 9, 1909

This species appears to me
quite the same as the *L.*
latifolius of the Berkeley Hills
but probably different from the
tall rank long-racemed plant
of the foothills of the upper
Sacramento valley.

C. P. Smith names no. 3193 as *Lupinus*
longipes Greene.

No. 3194 *Salix Lemmonii* Bebb. ^{Schn.} acc.

A shrub, many-stemmed, forming
clumps 8-12 ft. high. A few
glistening low-cone-like glands
scattered over upper surface. I
first discovered them by seeing
them glistening in the sun.
Otherwise they might easily
have been passed over.

Colonizing moist bottoms border-
ing Lake Merced.

Lake Merced (7200 ft.)

- *Pinus murrayana*, water-killed by flooding in mar. ^{5th} of Lake Merced. See back ^{7th} pp as to Aspen.

No. 3195. *Urtica californicum* ^{Dutch.}
Two divergent green glands at base perianth segments (or 1 V-shaped gland).

- *Populus tremuloides* trees, bark on trunk yellowish white, very smooth. Roughly fissured into small squarish plates only on old trunks at very base, then turning brownish. Many of the trees show marks of bear claws. These were very interesting and very distinct, sometimes long gashes where drawn down, sometimes sharp points like a driven nail.

Muir Co.

July 10, 1909

- *Abies concolor*; in the grove of aspens about Lake Merced - see 5 pp. back - there are a few scattered large-sized *Abies concolor*. The largest measured was 24 ft 6 in. ^{in circ.} at 4 1/2 ft. and 160 feet high, a truly fine spm. Another was 19 ft: 9 in. in circ. at 4 1/2 ft.
- *Pinus murrayana*, diam. 15 x 18 ins. age = 88 + 5 years.

- No. 3196. *Lotus nevadensis* (Pursh).
Buds red-magenta, fls. yellow, ^{green} fading reddish. (There is some red on the back of the banner in anthesis) = *L. douglasii* Greene var. ^{new. Ott.}
^{Allopathum violaceum (Hayden) A. & V. Grant}
- No. 3197. *Julia grandifolia* Sand, ^{river flat.} ~~*githoides* Greene.~~
- No. 3198. *Cryptantha* with 3197. *Plagiobothrys Torreyi* (Gray) Gray

Lake Merced

Yosemite. (7200 ft.)

- ✓ No. 3199. *Ribes* ^{*lasianthum Greene.*} River flat.
 ✓ No. 3200. *Salix* ^{*lasiolepis Sch.*} *stephensis*. River banks.

Cont. from p. 8-9.

- ✓ No. 3130. *Sitanion* ^{*S. hystrix (Nutt.) J. G. Smith*} *californicum*

No. 3133 *Bromus cuneatus*

July 10, 1909.

Granite plants

[No. 3188]

No. 3189

No. 3182

No. 3183

No. 3183

No. 3183

No. 3183

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No. 3140 a *Poa tratensis* L.No. 3140. *Poa scabrella* Bth.

" 3141. *Bromus tectorum* L.
 var. *nidus* Klett & Richter

Lake Merced Merced River
(7200 ft.), Mariposa Co.

Potentilla

Stamens 15, anthers purple

-Cont. 3202. = *H. rubescens* Torr. var.
nevadensis Jepson.

After heat break

July 10, 1909

No. 3201. *Clarkia*

Dwarfs on granite. Four of
the plants with three
petals!

✓ No. 3202. *Baxifragaceae*

Granite cleft. *Hemichera*
rubescens Torr. var. ^{*nevadensis*} ~~*fragilis*~~ ^{Jepson.}
= *Ivesia santolinoides* Gray of Man.
Greene.

✓ No. 3203. *Potentilla santolinoides*

Stamens 15; anthers purple.
(Pets. white, stamens 18. - Matthehorn Cañon).

✓ No. 3204. *Cornus stolonifera*
Michx.

✓ No. 3205. Composite.
Granite sand.

No. 3206. *Salix jepsoni* Sch.

✓ No. 3207. *Pseudotsuga* ^{*torreyi* C. + R.}
clefts of granite.

✓ No. 3208. *Spiraea*. "
densiflora Nutt.

Lake Merced

(7200 ft.) Yosemite -

✓ No. 3209. *Muhlenbergia montana* (Nutt.) Hitchc.
grass. One ofthe first grasses to
appear in clefts of
glaciated granite.~~*Muhlenbergia gracilis* Trin.~~✓ No. 3210. *Potentilla glandulosa*
Eindl. var. *reflexa* Japane.
Petals yellow.No. 3211. *Erigeron breweri* var. *clivarii* (Greene) Japane.
Composite. White
petals. Clefts granite
glaciated!*leichtlinii* Hook.No. 3212. *Calochortus*
nut-tallii T. & G.✓ No. 3213. *Radicalaris semi-*
barbata Gray.
Stem breaks so freely
from root!*Allium validum* Wats.✓ No. 3214. (Onion in swamp!
see p. 36.
No. 3214a. (*Mimulus* Lake Merced.

July 10, 1909

Dr. Geo. D.

- Linderback speaks of the
"Klamath Range". Diller makes
out a Cretaceous area in
northwestern California and
southwestern Oregon which is
geologically and sharply
separated from the rest of
the Coast Range. This separation
is not marked today by a
valley or ridge. This area is
today high and has a
remarkable number of species
which conform to its area.
Picea brivariana, *Chamaecyparis*
Lawsoniana, *Quercus sadleriana*,
Quercus breweri, *Arcebutus*
species, etc. *Pinus tuberculata* is
most strongly developed there. A
great many species stop short
of it (See ahead 3 pp.).

McClures Fork,
(9000 ft.) Merced River.

= No. 3224. Hemlock.

Circ. at 4 ft.

No. 1.	9-0	95
No. 2.	9-8	100
No. 3.	10-0	80

Bark of old trunks dull reddish brown, fissured roughly into long narrow somewhat obliquely placed plates with some of the plates with overhanging edge

- *Mimulus nanus* H. & A. (*M. neplusianus* Greene. Det. A. L. Grant.) No. 3214 a,
on p. 34.

July 11, 1909.

No. 3231. *Lesqueria triphylla*.

No.	Petals	Stamens
1.	6	5?
2.	7	5
3.	6	5?
4.	5	4
5.	5	4
6.	6	4
7.	5	4
8.	6	4
9.	6	5
10.	6	4

See p. 43

McClure Fork to
(9500 ft.) Merced River

- Klamath Range of Diller.
Cont. from 3 pp back.
Species which stop short
on its borders: *Aesculus*
californica, *Quercus lobata*,
Pinus sabiniana, *Quercus*
douglasii, *Quercus wislizenii*.

I do not know that this
stopping short has any sig-
nificance further than that
the mountains become too
high to permit the en-
trance of them into this
area.

Vogelsang Pass, July 11, 1909
(10600 ft.)

- *Pinus albicaulis*, in Vogelsang
Pass and up to the summits
of the peaks either hand including
Vogelsang Peak! It is rarely
other than low, forming green
mats which in looking up
at the mountain side from the
edge of the snowbank in the
pass they look prostrate as
they practically are; round
green mats dotting the
hillside very thickly.

McClure Fork to
(9500 ft.) Merced River

✓ No. 3215. ~~Tellima~~ ^{Lithophragma} scabrella Greene.

No. 3216. Senecio

No. 3217 " ^{integerrimus} var. ^{major}
(Gray) Cong.

No. 3218. Quercus vaccinifolia

abundant ^{wood,} low, typical scop.
No. 3219. Sedum ^{roseum} = Rhodiola

rosea L. var. integrifolia Jepson.

No. 3220 Ribes viscosissimum
Pursh

No. 3221. Senecio

No. 3222. Toxicaria

✓ No. 3223. Arc. nevadensis Gray.

No. 3224. Abies ^{magnifica}
Mun.

Vogelsang Pass, July 11, 1909
(10,400 ft)

No. 3225. Potentilla. In tundra
Vogelsang Pass. Stamens 20;
anthers yellow. Petals clear
yellow, round obovate, retuse
next to snow.

No. 3226 Ranunculus ^{coarctatus} Gray.
leaf in tundra, Petals
most commonly 1, 2, only
rarely 5. At first I thought
they had been eaten off, but
on examination I see no
signs of it. Vogelsang Pass.
next to snow.

No. 3226a. Ranunculus ^{abundans}
asfolius Gray. var. ^{alpinus} ^{melhus} Gray.
with 3226.

Vogelsang Pass (10400 ft.)
Sierra Nevada

✓ No. 3227. *Kalmia*, Fls. bright
pink. Stamens 10. Style
single. Near snow.
K. polifolia var. *microphylla* Rehd.

✓ No. 3228. *Bryanthus* ^{= *Phyllodoce*} *Breueri*
Gray. Near snow.

No. 3229. *Ledum glandulosum*
Nutt.

✓ No. 3230. *Streptanthus orbicu-*
latus Greene. (*S. tortuosus* Kell.
var. *orbiculatus* Hall.).

Mariposa Co.

July 11, 1909

No. 3231. *Lewisia* ^{*triphylla* Reb.} see back.
Wet soil in open spots in ^{P. 37}
forest. McClure's Fork, Merced
River.

No. 3232. *Ranunculus alismae-*
Vogelsang Pass (*folius* Geyer. var.
alismellus Gray).

✓ No. 3233. *Pentstemon Newberryi*
Vogelsang Pass. Gray.

No. 3234. *Sambucus racemosa*
Vogelsang Pass.

No. 3235. *Saxifraga arctica*
Vogelsang Pass. Would
not be noticed in the moss-like
vegetation of the "tundra"
save for the flowers.

Vogelsang Pass (10400 ft.)
Sierra Nevada

No. 3236. *Ranunculus adianthifolius* Greene.
In tundra. *folius* Ges. var. *ad-*
ianthifolius Gray.
[Vogelsang Pass
with 3226.]

No. 3237. *Penstemon davidsonii* Greene.
Alpine; blue.

No. 3238. Sedge.
Tundra. Det. K. K. M.
Carex nigricans C. D. Meyer.

No. 3239. *Pinus albicaulis* Engelm.
These fortails underneath pine
trees in fair number.

No. 3240. *Gastrodia mertensiana* Don.
Rock clefts in Vogelsang Pass

July 11, 1909.

No. 3241. *Saxifraga aprica* Greene

Rafterby Creek, in moist
soil of Tamarac Pine forest.
No. 3241a. *Mimulus mephiticus* Greene. Det. A. E. G.

No. 3242. *Montia chamissoana* Don.
moist
bank of streamlet, Tuolumne
meadows. July 12 and

all following. Surface runners,
originating from base of stem. Root-
stock ending in tubers. (8600 ft.)

No. 3243. *Lonicera* Yellow
involubrata Benth.
fls. with preceding. Bush
2 ft. h. (8600 ft.)

No. 3244. *Tsuga mertensiana* Sarg.
hemlocks. Fls. male
smoky purple. Female fls.
rich purple. Leaf in x sect.
almost round, a little
flattish above. Stems
roughened with old leaves.

Lambert Dome

Sedum mids. 9400 ft

Leaves with whitish petioles,
the petioles very distinct,
even above the joint.

Lambert Dome

(The coloration
of the peg is
brownish.)

no. 3245. *Pinus albicaulis*.
male fls. Engelm.

no 3246. *Pinus murrayana*
female fls.

✓ no. 3247. *Leptodactylon pungens*
(Torr.) Granite clefts, Lambert Dome

no 3248. *Eriogonum ovalifolium*
var. *nivale*

Granite cleft, edge of
summit of Lambert
Dome with preced.

Per. segments rotate,
peduncles erect.

July 12, 1909.

Eriogonum lobbiai T. & G.
no. 3249. Lambert Dome
Peduncles prostrate, the heads lying on the
ground! Summit. *Eriogonum*

Granite clefts. Per. segments camp.

✓ no. 3250. *Juncus*. Summit

Lambert Dome, *J. parryi*
Engelm.
Det. F.V.C.

no. 3251. Grass. with 3250
Festuca brachyphylla Schult.
supina

✓ no. 3252. Grass. with 3250
Trisetum spicatum (L.) Richt.
longidolus

No. 3253. *Pentstemon davidsonii*
Greene. Corolla purple-blue.

Lambert Dome, granite

No. 3254. *Arenaria*
Granite clefts Lambert
Dome

No. 3255. *Arenaria Kingii*
with 3254 (Wats.) Jones

Tricolonne Meadows to Mt.

8600 ft - 9800 ft. at Base Camp, Mt. Dana.

- ✓ No. 3256. *Sambucus racemosa* L.
Bush 1 to 3 ft. h.
n. side Lambert Dome.

- ✓ No. 3257. *Potentilla flabellifolia* Hook.
Leaves 3-fol. Petals yellow,
round, emarginate. Disk-margin
deep orange, glandular,
bearing 20 stamens. Herbage
a little clammy.

Carex exserta Mackenzie. Det. K. K. M.

- ✓ No. 3258. ↑ Lodge. Open Tamarac woods.

- No. 3259. *Carex*. Open Tamarac woods.

- ✓ No. 3260. *Lupinus*
exaltatus Gray var. *canadensis*.

- ✓ No. 3261. *Calyptridium* v.
umbellatum var. *condicifera*.

- ✓ No. 3262. *Phlox diffusa* Hook. rocks.

- No. 3263. (not used) *Phlox Douglasii* Hook. Dana Fork. Var. *diffusa* Gray.

- ✓ No. 3264. *Gymopterus terebinthinus*
Dana Fork T. & G.

- No. 3265. Willow. "
Salix lasiolepis Chell.

Dana. July 13, 1909.

- John Muir says: "I can't make
two species of *Pinus contorta*.
Then there is the Lodgepole Pine
of the northwest which has
a different habit. Its long
slender poles are different-
from this mugger here.
That is because of fire. It
holds its seed a year or
two, some botanists say
they have found them good
at 8 years, and after
fire, lo and behold, they
sow the area with seeds
on the ashy soil - just
what they like and then
comes the snow and the
next spring there is a
green sward so dense

Mt. Dana = 13050 ft.

Saddle = 11,600 ft.

that the poles are very slender
and they bear cones so
high [4 ft. h.]."

This would make the
Lodgepole Pine a fire-type
pine. He admits the beech
type is generally contorted
(dwarfed) but not always
he claims, which is true.

No. 3266. *Willow* Dana Saddle

No. 3267. *Vaccinium* ^{*v. nivictum* - *caespitosum*} " "

Nos. 3268 to 3287. Omitted inadvertently.

No. 3288. *Calyptridium* ^{*Spraguei*} Dana saddle.

No. 3289. *Potentilla* ^{*umbellatum* var. *caudicifera*} Dana saddle.

No. 3290. *Potentilla* ^{*gordonii*} Dana saddle.
^{*vesia* *lycopodioides* ssp. *megalapetala*}
var. *megalapetala* ^{*Gibson*} Petals round, apiculate.

No. 3291. *Podisleria* ^{*nevadensis* Wats.} Dana

Saddle. Also forms round mats
1 ft. diam. as closely woven as a
rug. the flowers rising ones

Trachymene Co.

July 14, 1907.

slightly above the foliage.

- *Valeriana*

- *Polygonum* of marshes - round
white ball of flowers.

No. 3292. *Draba* ^{*pauciflora* Dana Summit,}
^{*monis* Wats.} forming small mats in the
clefts of rocks.

No. 3292a. *Draba* ^{*oligosperma* Hook.}
^{*glacialis* Adams.} Summit.

No. 3293. *Phlox* ^{*toughii* Hook.} Pure white
corolla. From leafy mats closely
woven. Dana Saddle & lower
slopes.

No. 3294. Corollas pink.
Ribes ^{*caeruleum*} white; calyx

No. 3295. *Carex* ^{*Raynoldsii* Dewey. Det. K.H.M.}

No. 3295a. *Tolmonium* ^{*eximium* (Greene) Jep.}
^{*confertum*} Dana Summit.

All on the slope up to the
monument. west slope. Abundant.

Mt. Dana = 13050 ft

Saddle = 11600 ft.

- No. 3296. *Erigeron compositus* var. *glaberrimus* Macoun.
Holcus, Dana summit-
 • *Ivesia lycopodioides* Gray
 No. 3297. *Potentilla* Dana summit.
gordonii Greene var. *lycopodioides*
 No. 3298. *Phlox caespitosa* Nutt. *greena.*
 Dana summit. *Dense mats crevices rock*
Salix monica Bells.
 No. 3299. Willow. *evergreen?*
 Last year's leaves persisting
 but brown!
 No. 3300. *Sedum* *rhodiola* Torr.
 (= *Rhodiola rosea* L. var. *integrifolia* (Greene) Macoun.)
 No. 3301. *Erigeron compositus* var. *glaberrimus* Macoun.
 No. 3302. *Antennaria* " "
 No. 3303. *Arabis* " "
Lemmonii Wats.
 No. 3304. *Comp.* " "
 No. 3305. *Arabis* *lyalli* " "
Wats.
 No. 3306. " " "
 No. 3307. *Alimella* " "
 No. 3307a. *Draba stenoloba* *Ledeb.*
 No. 3308. Willow *Salix monica* Bells

This willow forms colonies,
 dense clumps 10 to 100 yards
 across; covering 10 or 15 acres
Salix planifolia monica det. C. Schreb.

July 14, 1909.

just below Dana Saddle.

- = *Salix monica*; also says Ball, in
 litt. 6 Dec. 1913
 No. 3309. *Draba* *oligosperma* Hook.
 Dana Saddle
 No. 3310. *Potentilla breweri* Wats. var. *viridis*
Gipsom. (= *Salix monica* *Ball*, 6 Dec. 1913.)
 No. 3311. Same as 3299. " "
 No. 3312. Parsley Fam. Dana Saddle.
Podistira nevadensis (Gray)
 No. 3313. *Arenaria kingii* ssp. *compacta* Mag.
 No. 3314. *Solidago* " "
 " 3315. *Pentstemon* " "
 Flowers blue-purple.
 " 3316. *Draba* *Breweri* Wats.
 Dana Saddle.
 " 3317. *Pedicularis* *groenlandica* Retz.
 " 3318. *Potentilla breweri* Wats.
 3318a. *P. diversifolia* var. *glauca* (Gray) *Wats.*
 " 3319. *Salix* *Bushes* 5 ft. h.
 Clumps in moist
 bottom Dana Park.
 " 3320. *Salix orestera* Schreb. det. C. Schreb.
 " 3321. *Dicentra*. Notice the
 rice-grain bubble at summit

Mt. Dana = 13050 ft.
Saddle = 11600 ft.

fleshy root. The plants are very inconspicuous and lie close to the ground. Below granite rocks where there has been weathering, with a snow bank above ^{which has} just disappeared. Ed. Gould.
Tioga. *D. uniflora* Kell.

no. 3322. *Potentilla* ^{bruticosa?} shrub 1 ft. h.
Dana Fork high up.

No. 3323. Comp.

No. 3324. *Pedicularis*
P. groenlandica Retz.

no. 3325 *Potentilla*

Cont. from p. 52. No 3318a. *Potentilla gracilis* var. *rigida* Wats.*

Cont. from p. 52. no. 3305 *P. diversifolia* var. *glaucophylla* Lehmann.

* cited in fl. Cal. as *P. diversifolia* var. *glaucophylla* Lehmann.

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- John Muir says: "I was with ~~the~~ Gray in the Yosemite valley for ten days. When he was ready to go out I went with him ten miles out over the Coulterville Trail - there were no roads then. I had taken him down to the lower end of the valley to the Cascades to see Torrey. He was mightily pleased to see the trees and we talked about the man for whom the trees were named. I asked if ^{John} Torrey were coming to California. Oh, said Gray, Torrey is an old man now. If you want to see Torrey you will have to go to New York. As I said I parted with

Tuolumne Meadows (8600
ft.)

Gray on the Coulterville Trail and went back into the valley to (Hutchings' Cabin?), Pretty soon some one came down from the hotel and said there was a batanist there. I must come up. Well, I didn't know about it. I had just had a long visit with Gray and after Gray I felt I didn't want to see any one else.

After a while there came down Joseph Le Conte from the hotel and exclaimed with great delight: "Professor Torrey of Columbia is at the hotel; you must come up." Of course I went. There was Torrey who had come in by the

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Big Oak Flat trail while Gray was going out the Coulterville Trail! A curious thing."

Miner could not tell me the year. But that is easily looked up.

- *Aquilegia pubescens* Cov.

The creamish white species is on Kuna Crest acc. Miss Eloise Hife;

and I saw a flower brought in by Mrs. Agnew.

- Tuolumne Soda Springs was well known to the Indians. The tube from the desert and the Great Valley used it as a trading place. Indian arrowheads are found still in abundance. The obsidian was brought up by the Miners and traded to the Indians from the west for acorns.

Tuloume Meadows

Talk before the Sierra Club.

Sketch of the characteristics of the Sierran Forest. From the botanical standpoint. We divide it into five Zones the limits of which are determined by rainfall and temperature mainly.

1. Sonoran Zone, the foot hill area. Species same as or related to the char. species of the Sonoran area in Mexico.
2. Transition Zone. Main timber belt. Tree Species. ^{Sierra camp in Yosemite}
3. Canadian Zone, upper portion of main timber belt. Red Fir, Silver Pine, Tamarac Pine. Echo Creek Trail.
4. Hudsonian Zone. Timber-line zone. Char. species Whitebark

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Pine and Juniper

5. Boreal Zone, above timber line. Arctic plants in Mt. Dana and in Vogel song Pass.

Characteristics of Sierran Forest in Gen.

1. Almost wholly coniferous
2. More coniferous species than elsewhere. Australia has Eucalyptus & Acacias, New Zealand its ~~the~~ Podocarpaceae, Brazil its Palms, Eastern U.S. its broad leaved trees but we excel in conifers.
3. Greatest developm. in size of individuals. Biolog interest also great mostly
4. Species peculiar to California or mainly best develop here. 90 forest trees in California. Two in common with East. U.S.

Tróluurru M'áivos

Ashen and Black willow.

Trees of interest to mountaineers because they indicate altitudes, they occur with certain alt. range. Timber-line trees are of especial interest. These are hardy mountaineers that advance over the granite to 10000 to 12000 feet, resisting the adversities of their high situation and bearing in every feature of trunk, limb & foliage witness to the ^{very} winds & snows of the Sierran winter. As mountaineers we should certainly feel that they have with us a sense of brotherhood in trying to get to the highest points of the range.

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Trees are ^{the means} too rare but one element
of interest of mountaineers, which
include peaks, rocks, cliffs, cañons,
lakes, glaciers, ice, snow, alpine
birds, alpine butterflies, alpine
beetles, alpine flowers - all these
things come within the field of
our interest - all the phenomena
of the High Sierras is an especial
province. And the Club has always
been fortunate in having
members who in their hours
of recreation have become well-
informed as to cliffs, as to altitudes,
as to the meteorology of the
High Sierras and a dozen
similar subjects. It is such
mountaineers that must represent
the backbone of the Club,

Tricolour Widius

present its activities to the public and maintain the dignity of the club in competition with other alpine clubs of the world. It is the primary object of this Club to enjoy the High Sierras and help others to enjoy it. But the greatest enjoyment comes from the most thorough understanding and it is an object of the Sierra Club to be the most well-informed body concerning all the interesting ^{natural} phenomena of the High Sierra. Well-informed of course mainly in the sense of hikers who have the gift of observation, and in this connection it is especially

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interesting to ~~sublime~~ the various ways in which new members each according to his bent is using his powers of observation, to garnering treasures of mountain delights to ^{in this July} ~~his~~ the thrifty sweetness for December.

But whether we have a special interest which is of importance to the ideals and ambitions of this club or whether we are simply enjoying things in general - an enjoyment no less real - we are fortunately bound together by our great-common sympathy - the love of the mountains, the lure of the trail, the riotous joys of the wide free spaces

Tribune Mdues

of the peaks and ridges. In all this I like to think we are governed by primitive instincts. Each year we must come back to the woods and live a little in the ways of primitive man. This is a sort of reversion to ancient habits. For we are the direct descendants of the Carib men. We are the direct descendants of the lake dwellers. And when came the glacial sheet we forefathers moved out upon it, spoke on the ice with the bowhead, followed the sabre-tooth home and worked their hunting boats through the milk of

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the rock-staked seas.

Once a year we must return to the woods, make an camp-fire and worship the red gods therein. I have seen little parties of our club-members make a little fire at noon on the trail. Not because they really needed it, But they did it whether they knew it or no in celebration of one of the greatest triumphs of our race. When man first struck fire from flint the coward animals of forest and jungle fell back terrified and afraid. Before that it had been tooth against tooth and claw against claw.

Troluvune Midins

Then man's superior intelligence seized upon fire and he became master thenceforth. Man had some triumphs before and many since but none scarcely equal to that. So our forefathers tended the sacred flame at their altars and I like to think that in the veins of some of us still burns at times the mad passion of that day of triumph for our race as against all other animal races, that within its still stirs the love of the red gods in the camp-fires in the woods.

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That love of the woods and of out-of-doors, that call of the wild which binds us all together has been better portrayed by the authors of the "Camp-fires of the young men" than any ^{else} I know. And of that I will quote you a portion. But first I must ask of you a well-nigh impossible thing. Let me imagine yourselves in your own homes, the winter gone, the spring at high tide, and world-old desires in heart and brain pulsing once more for the mountains. Hold yourselves there for a few brief moments and listen to this:

The Camp-fires of the Young Men.

Tiolumne Meadows
8600 ft.

- Mr. Wm. Colby gave a camp-fire talk on J.B. Lambert after whom was named Lambert Dome. "Lambert lived on and patented the Tiolumne Soda Springs ^{quatern} section. He lived in his cabin there in summer and moved down in winter to his cabin at the lower end of Yosemite Valley where he was murdered. He made considerable money as a collector. The U.S. Survey parties employed him as a guide in the region and he learned from them the value of beetles, butterflies & plants. After they left he ~~was~~ employed by them

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to collect certain things which were not then in season. In this way he did general collecting."

Lambert sent plants to Greene who named as new *Senecio Lambertii*, spelling his surname Lambert, doubtless inadvertently.

- John Muir speaking of W.H. Brewer: "What legs he had beneath him! He astonished even the natives!" I made the remark that he did not collect a really great deal - not the amount one would ^{nearly} have expected from 30 years in the field.

Int. Lyell, 11,000 ft.

- No. 3325* = ^{Sibbaldia} *Potentilla pro-*
cumbens. Petals yellow,
 minute, ovate. Stamens 5,
 with roundish or trans-
 versely oblong anthers. Styles
 about 6. = *P. sibbaldi* Hal.

- No. 3326 ^{nivalis L.} *Saxifraga hypnophora* Gray.
 Gray. Glacial amphitheatre,
 head of Lyell Park.

- No. 3327. *Triogonum incanum*
 with 3326.

- No. 3328 *Triogonum incanum*
 with 3326.

* See photo, II-5, Lyell ill.
 country for nos. 3325-3332.

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No.	^{Louisia} Diobroma <i>pygmaea</i> ^{Lab.}		
	Petals	Stamens	Styles
No. 1.	6	5	3
No. 2.	6	6	3
No. 3.	6	6	4
No. 4*	6	7	5
No. 5	7	8	5
No. 6.	6	8	4
No. 7.	6	7	4
No. 8.	5	5	3
No. 9	6	7	4
No. 10	6	6	4.

Petals ^{very} unequal or subequal. When unequal
 one petal sometimes very small.

Petals pinkish/whitish with 3 or 4
 marked longitudinal dark pink
 bands or nerves, emarginate & apiculate

Nos. 5, 6, 7, on one plant. ^{in the noted}

Petals acute or rounded.

*
 No 4 = albino, more or less
 monstrous, i.e. petals (some)
 not of normal shape

Mt. Lyell, 10,500 ft

- No. 3330. *Arenaria kingii* (Wats.) Jones
Stamens 10; styles 3; petals
oblong, white, entire.
See 3336.

- No. 3331. *Dicentra uniflora* Kell.

- No. 3332. *Allium tribracteatum* Torr.

- No. 3333. *Streptanthus tortuosus*
var. fls. magenta-purple.
torbiculatus Hall.

- No. 3334. ~~Sedge~~. *Luzula divaricata*
Wats.

- No. 3335. *Potentilla breweri* Wats.
Stems procumbent or ascending.
Stamens 20. Petals yellow,
subflabelliform, truncate. Leaves
wooly.

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- No. 3336. *Potentilla breweri* Wats.,
var. *viridis* Jepson.

Like 3335 except leaves green.

Found within 200 yds. of it in
same kind of country. Glacial
amphitheatre, rough boulder blocks
strewn all over it, a little granitic
soil collected & held in spots.

All back to 3326 collected at this
station which is directly under
north of mts. Lyell & McClure.

- No. 3337. *Sedum* ~~*rhodiola*~~ *rosea* var. *integrifolia* ^{Wats.}

Fls. blue-black in bud. Perianth
parts 4 and stamens 8, or 5 and
stamens 10. Four or five yellow
scale-like glands in circle at
base of ovary, the stamens
arising from beneath them.

- No. 3337a. *Draba Lemmonii* Wats.
Collected by Mrs. J. H. Allen.

Mt. Lyall, 10000 ft

No. 3338. *Aster Erigeron petiolaris* GreeneNo. 3339. *Pinus Murrayana* Gray & Balf.
Deciduous branchlets. Seena great many times beneath
trees high up, apparently
not under the big trees lower
down.- Alpine Hemlock. Upper end
of Lyall Park. One tree on a flat
on mountain side measured
16 ft. circ. at 4 ft. 80 feet
high, the uppermost ten feet
a dead shaft.Just beyond this a sharp
bare slope covered with an
avalanche of boulders, some
half-as-big-as-houses,

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which swept the slope clear
of forest. Along a moist-torrent
side grow a few colonies of
Hemlocks, the big trees broken
off but young ones succeeding
them on mossy branches
from old stumps. See photo.No. 3340. *Erigeron peregrinus* (Pursh) Greene ssp.
Callianthemum (Greene) Cronq.No. 3341. *Minulus primuloides* Bth.No. 3342. *Lupinus*, white fl.

Same as blue-flowered sp.

See back, no. 3260. *Lupinus lyallii*
Gray var. *lanau* Wats.No. 3343. *Cassiope mertensiana*,
Clefts of rocks where a J. Don.
torrent comes down. Fine
display. Anthers with
awns. Bare boulder slope.

Mt. Lyall, 9500 ft.

No. 3344. Mt. Ash. with ^{californica Greene} ~~prec.~~
Bush 4 ft. h. Sorbus ~~est.~~

No. 3345. *Lonicera involucrata*
Fls. pale yellow. Stigma
globose. Lobes of corolla closed
in beneath stigma, not open
or spreading. Style a little
hairy at middle or just below.
Lobes of corolla short. Anthers
yellow. Bush 3 ft. h.
with 3343.

No. 3346. *Ribes montigenum* Muhl.
Bush - 2 ft. h. Petals
deep red, minute, flabelliform
truncate, with short claw.
Curious glandular disk as
to shape.

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No. 3347. *Lonicera* ^{conjugialis.} Fls.
black-purple. Corolla
throat very hairy on lower
side; also stamens hairy.
One lobe to lower lip, 3 to
upper. Bush 2 ft. h.

No. 3348. *Potentilla* ^{nevadensis}
~~kindl. var. caerulea Greene~~
Petals creamish white,
round. Stamens 20; anthers
yellow.

No. 3349. *Aster*
Lavender rays

No. 3350. *Potentilla diversifolia* Ledeb.
^{var. glaucophylla Ledeb.}
stream side.

Mt. Lyell, 9,000 ft

No 3351 *Potentilla breweri* Wats.
var. *expansa* Wats.

No 3352. *Ledum glandulosum* Nutt.
Stream side on slope.

Grass covered with minute
glandular granules.

No. 3353. (Not used)

No. 3354. *Lupinus latifolius* ^{Gard.}
~~var. columbinus (Nutt.) C. P. Sm.~~
Fls. purple-blue.
Plant 3 1/2 feet high.

No. 3355. *Mimulus Tilingi* ^{Det. A. S. G.} Regel.
Mossy streamlet bank
near Lyell Base Camp.

Clammy herbage. Very distinct.

No. 3356 *Salix argentea* ^(Benth.)
Lyell Park. ^{Schm.}

Photographed this three

July 16, 1909.

times. The plant forms a
clumpy bush, the stems
many from the central
stump, ascending, spreading,
the lower outermost stems
turning downward & dying
forming a sort of chevron-
de-fence about the base of
the bush, this receiving
accessions from above every
year, the bush renewing
itself with the shorter erect
branches in centre.

These bushes occur in great
abundance on the moist-
level flats of Lyell Park
from within a mile of
its mouth up as far
as Lyell Base Camp.

Mt. Lyell

Lyell Fork = 8800 to 9000 ft.

- Most of the Lyell plants were collected on the plateau just below Lyell and McCallum, and on the way down to Lyell Base Camp. The landslides or rather avalanches of rocks work great havoc on the slopes west of Lyell Base Camp. It is a great rock slope with patches of soil in the boulders where the streams from melting snow come down. The alpine flower fields were not very interesting (on the plateau) as the season was too early.

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- Most interesting is the Lyell Fork. A long glacial valley with a beautiful crystal-clear stream showing green and blue colors meandering through its meadows (which are clear of everything save herbaceous plants excepting only *Salix argentea* (No. 3356) bushes which gave the valley an arctic valley appearance) or rushing in beautiful volume over a low granite ledge which runs across the valley. It is a walk of eight miles from Lyell Base Camp to Lambert Dome.

Mt. Lyell

but a most delightful one. This run is a continual enjoyment and occasionally we have before me high snow-covered mountains.

- John Muir says: "Bolander was one of these plodding industrious Germans. He had many fine books. His downfall came about from drinking too much. He didn't seem to care anything more about things botanical - giving it all up. Gray with Sir Joseph Hooker came to San Francisco and stopped at the Palace Hotel. They

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sent word to Bolander that they were there and would like to see him. He did not reply. They wrote again. Then they sent word that if agreeable they would call on him. But Bolander still made no reply. They asked me what was the matter. I thought that probably Bolander had been drinking hard and was ashamed to show himself. He went to Panama and lived awhile. Hartness got some of his books."

Tuolumne Meadows

- Roughly speaking two groups or formations of alpine plants: 1. The arctic formations on tundras in moist cool hollows or saddles, especially on north, east or west cañons at their heads. *Salix arctica* and other willows, various *Cynifers* as found in Dana Saddle, *Aspenella*, *Ranunculus*, *Potentilla* and the like. See the members on Dana

Saddle. *Oreobroma*, *Dicentra*, etc.

2. The Rock-pile Plants.

Higher altitudes than the preceding. Growing on slopes or peaks like Dana, Lyell, Whitney.

Broken boulder slopes;

July 17, 1909.

practically no soil; well drained; great radiation.

The conditions are to a degree arid. Such plants as *Hulsea*, *Eriogonum*, *Polemonium confertum*, etc.

- Wesley Mitchell, just in from Washington came in to camp just now. With ^{Ward} Gregory on a special trip.

- I started in from Mt. Lyell Base Camp to Tuolumne Camp, 8 miles in a little over two hours, with Wood, O'Connor, + Miss Fife who is a little thing but who led the party nearly the entire way.

Tuolumne Soda Springs

8600 ft.

- *Tsuga Mertensiana*. Groves of young trees in north hollow on trail to Conness Creek from the meadow below the Tuolumne Springs meadow. Also large trees scattered through the Tamarac Pine forest east of Conness Creek. The dark green crowns of the Hemlocks stand out from the reddish brown of the Tamarac Pine. The Hemlocks are mostly taller.

to Conness Creek, July 18, 1909

8300 ft.

- No. 3357. *Salix*. Tuolumne River, meadow 2 miles below Soda Springs. 8500 feet
S. Lemmonii Schen.
No. 3358. *Arenaria* ^{A. Kingii Jones} *capellariae* Poir.
Stamens 10, the 5 alternate with petals dehiscing first. Anthers red-brown. Styles 3. Commonly much smaller. Domes near Conness Creek
No. 3359. *Brodiaea gracilis* Wats.
Perianth saffron yellow, pure inside, a broad brown streak outside widening upward.
Filaments filiform; anthers blue!
Soil: Granite sand in drift spots on dome sides.
No. 3360. *Bastillea culbertsonii* ^{Greene} Filas.
Bright crimson-red, forming patches of an acre or so in river meadows. Tuolumne R.

Conness Creek (7800 ft.) Tuolumne Co.

No. 3361 *Allium tribracteatum* Torr.
Trit. granite sand in drift
places on dome sides near
Conness Creek

No. 3362 *Oxyria digyna* (L.) H. & A.
ledge rifts, moist, on north
steep side domes near
Conness Creek.

No. 3363 *Hulsea Raillardia scaposa*
Gravel sand drifted in
ledge banks on side granite
domes near Conness Creek.

No. 3364. *Gilia pungens* Bth.
Granite rifts.
= *Leptodactylon pungens* (Torr.) Jepson.

July 18, 1909.

"Lambert of Lamberts Dome
was a tall picturesque
looking individual with
great head, bushy hair,
long white hair and
prominent Roman nose.
He was highly eccentric,
so much so that people
called him crazy." - W. C. Colby

Several parties go down the cañon
of the Tuolumne, leaving the main
party on a knapsack trip. The men
are carrying packs 30 to 37 lbs,
the women (girls) 9 to 15 lbs. In other
words the men are carrying food
for the girls. Many of them are no
mountaineers at all. Charlie Sutton
the loggers got out on to the middle
of the log crossing Conness with
his pack and cried in his shrill voice
for help and some one had to go to his
assistance to steady him across the log.

Conness Creek (7800 ft.)
Tuolumne Co.

- Went down to the cascades
 below Conness Creek junction
 for a view down the Grand
 Cañon of the Tuolumne.
 Had lunch in a fine gale of
 wind on a high point of
 rocks. Dr. McClear, Schwarz,
 late of U.S. Forest Service,
 Miss Galvin & myself.
 Ashes & plants mixed
 with the Tamaracs in the
 moist floor of the
 cañon. *Lupinus latifolius*
 a great thicket waist-
 high in bloom. Blue
 Larkspurs, *Calochortus*
mustis ^{c. multicolor}. On the lakes
 side just by our lunch
 place was an area

July 19, 1909.

of *Quercus vaccinifolia*
 about 30 feet square,
 1 ft. high, close and
 even. Junipers on the
 rocky sides of the domes,
 shedding their leaves in
 little clusters of branchlets.
Pinus monticola. *Abies*
magnifica. Jeffrey Pine.
 All these last three only a little

- Mountail *Potentilla* at
 Conness. Same as at Lake
 Mexico

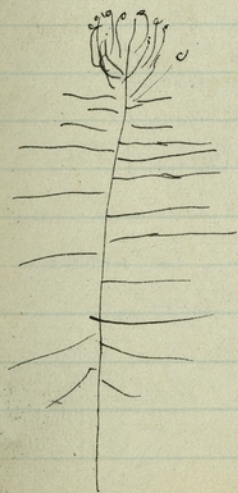
- John Nuni says to head
 Kellogg at Yosemite. Tuolumne
 Cañon meadows and
 down to Fort Independence

Return Creek

- *Tsuga mertensiana*. Branches in full-grown tree, sweeping downward at base of crown, horizontal in middle of crown, ascending above. Frequently the whole upper portion of crown has horizontal branches, esp. in tip top where the slender spine is with its short-cone-bearing branches. Cones over $\frac{1}{3}$ or rarely $\frac{1}{2}$ upper part of crown. See later descrip. a few p. on

July 20, 1909.

- Silver Pine. Branches mainly horizontal, especially above, the very tip top with ascending or close cluster of semi-upright branches. I noticed a cone where only this brown-tip was cone-bearing.



This type is really characteristic of the trees in this cañon.

Return Creek to

= *Tsuga Mertensiana*, 14 ft 4 in. at
4 ft, 65 feet high ^{circ}

No. 3365. Parsley Fern.

With tubers. Dry pine
hillside. Enness Creek

Eulophus bolanderi (Gray) C. & R.

No. 3366. ^{*V. macloskeyi* Lloyd} *Viola blanda* Willd.

Corolla white, lateral petals
very slightly bearded. Lower
petal with short 7 parallel
purple lines. — Matterhorn
Cañon just below pass from
Return Lake. Sepals ovate,
acute but the very tips
blunt.

3366 A *Tsuga mertensiana* Gray.

Matterhorn Cañon, July 20, 09
(8800 ft.)

- *Tsuga Mertensiana*, 15 feet
circ. at 4 ft, 55 feet high.
Old tree.

- *Tsuga Mertensiana*. Branches
sweeping downward at base
of crown, horizontal in
middle of crown ^{mainly} and up into
tip where the short cone-bearing
branches are. All these upper
branches and in middle of
crown are most commonly
horizontal, or a little ascending
now, in young trees, feathered
to the base it is a very
different matter. In such
trees the branches commonly
all sweep downward or give
that effect. The bark in

Matterhorn Cañon (8800 ft.)
Tuolumne Co.

mature tree is dark reddish brown, roughly broken or fissured into short longitudinal ridges rather.

The finest grove of *Tsuga mertensiana* that I ever saw in California is on the eastern side of Matterhorn Cañon. We passed down this east wall which is abrupt & moist, streamlets trickling here and there, snowbanks lingering, through this grove. Trees of all ages but particularly full grown trees. Many 5 feet in diameter.

No. 3367. *Mumulus Lewisii* Pursh.

July 20, 1909.

= *Horkelia fusca* ^{Lindl.} ^{Douglasii} Greene.

No. 3368. *Potentilla* | Stamens 10. Disk cup-shaped. Petals obovate, white.

Herbage glandular. Sepals triangular, acute. Common in half-moist woods or dry areas.

- *Tsuga mertensiana*. Leaves nearly terete, but flattish above. The young foliage is glaucous or blue, the leaves aggregated at ends branchlets give a star-like effect.

- *Gymnocarpus occidentalis* Hook. On table shelves of cliffs.

No. 3369. *Phacelia frigida* Greene.

Phacelia

No. 3370. *Hydrophylloides Torr.*

Matterhorn Cañon to ^{Julienne Co.} Benson Pass
(8800 ft.) (about 10,500 ft.)

No. 3371 *Pentstemon bridgei* Gray.

Upper lip erect, lateral lobes of lower lip recurving, middle lobe with both edges so revolute as to form a tubular structure which protrudes horizontally. (Sticks straight out. ~~sterile~~, stamens glabrous.

Yellow-brown band bordering mouth of lower lip, running round base of lobes.

- *Sambucus racemosa* on granite talus in Matterhorn Cañon and Wilson Creek.

Common where there is a little stream down over the talus.

No. 3372. Grass (*Poa gracillima*)

No. 3373. *Hieracium gracile*

No. 3374. *Erigeron* ^{compositus} ~~var. glaberrimus~~ ^{var. glaberrimus}

July 21, 1909.

= *Jvesia santolinoides* Gray ^{santolinoides} Greene.

No. 3375 *Potentilla* (mouse Tail).

Stamens about 15, scattered over a glandular yellow disk. Petals white, orbicular, sessile.

= *Leptodactylon* ^{pungens} Bth.

No. 3376. *Gilia* (granite *Gilia*)

Petals pink, twisted in bud, each petal with its ^{corolla} edge overlapping the next. Tube long, anthers equal, quite hidden.

No. 3377. *Heuchera rubescens* Torr. var. *alpicola* Jepson, of Fl. Cal.

Petals white, oblanceolate or oblong, minute. Calyx: tube white, its sepals green as if like glandular cushions.

Benson Pass (about
10,500 ft.)

- *Pinus ablicaulis*, in Benson Pass. Prostrate mats in the granite rocks with old procumbent trunks 1 ft in diam. beneath them noticed that the foxtail ends of the branchlets had in great numbers been swept off by the winds in the pass. Sticking up through the foliage below were these pencil-like stubs. The staminate catkins are globose, pink-crimson.

July 21, 1909.

- ✓ No. 3378. *Pendstemon davidsonii*
Fls. purple. Greens.

This seems just like *Pendstemon Newberryi* but its vegetative parts more mat-like and its ^{corolla} not at all the crimson red of that species. I doubt if the differences are more than varietal or formal.

- Benson Pass. The flowers fade deep indigo.

- We climb the rock pile 500 feet above Benson Pass and have a most magnificent panorama of Rutter, Banner, Dancer, Lyell, Hoffman, Conner, and the bare granite country to the north which is very

Benson Pass to Smed-
(about 10,500 ft.) (about

high and vary. Prof. Thos. Crosby of the Mass. Tech. has just gone up. I named them to keep around the rock piles until they got to the top me. Ys said Mrs. Crosby, my father always told me in climbing that a foot bail was no work lying down than standing up.

- *Pinus albicaulis* amongst the rocks on top the rock pile above Benson Pass
- Beautiful rock gardens of *Pentstemon Newberryi*, forming many-flower close clusters a foot across in the granite clefts.

Jackson Co.

berg Lake, July 21, 1899.
9500 ft.)

- ✓ No. 3379. *Potentilla flabellifolia* Hook.
Under Tamrac Pines.
Stamens 20, the circles on a glandular disk which is yellow next the petals with a purple zone next the carpels. The bases of the filaments of inner circle are immersed into this purple zone but not actually on this color.
Petals large, round, emarginate. Anthers yellow. Moist meadows chiefly.

- No. 3380. *Ranunculus alismae-*
folius Jeyer var. *alismellus* Gray
The sheet made from me
Plant forming characteristic clumps in moist granite sand in meadows. Petals 5.

Rodgers Lake (about 9,500 ft)

- Red-barked trees of higher altitudes. *Pinus monticola* at higher altitudes gets very red-barked. *Pinus jeffreyi* ^{-brown} gets rusty-red or even wine-colored. *Abies magnifica* gets a very rich red-brown. *Pinus murrayana* often takes on a reddish tint at highest altitudes, its bark is usually a yellowish cast. Juniper red fibrous long. fissured bark on old trees.

- *Pinus monticola*, bark on old trees broken longitudinally & transversely, checked into squarish or rectangular plates 2-8 ins. long

July 22, 1909

- Rodgers Lake, wonderful reflection just after sundown just before the after-glow begins. It is the most wonderful scene of the sort that ever met my eye. A high rock dominating the opposite shore, the snow-banked cliffs with a few clusters of Tamarac Pines and Hemlocks - the whole with the brilliance of the California atmosphere and with that unusual softness seen in the English Lakes.

- *Tsuga mertensiana*, just above Smedberg Lake south - "I never feel I am in the mountains really until I get up among the hemlocks" - Dr. McIlhenny

Rodgers Creek to lookout point
 No. 3381. (9000 ft.)
 Hieracium 9400 ft. (*Lewisia nevadensis*)

no	Petals	Stamen	Style
1	9	7	4
2	6	8	4
3	7	7	3
4	7	10	5
5	7	9	5
6	8	7	5
7	8	6	4
8	8	7	5
9	8	8	5

Neills Lake. Granite sand on granite table. Petals white or nearly so. Fls. larger than on Mt. Lyell.

No. 3382. *Hieracium* 9000 ft.
 (Breweri Gray.)

No. 3383. *Phacelia* 9000 ft.
 (*frigida* Greene.)

No. 3384. *Lonicera* 9000 ft.
penyugialis.
 Leaves of sterile shoot.

at Miner Gorge, July 22, 1908.
 (8400 ft.)

- *Quercus racemifolia*. All along the lower portion of Rodgers Creek, low broad mats 1 or 2 feet high covering the rocks. Typical form. No suggestion of transition too high. From the lookout point on Miner Gorge, Grand Cañon of the Tuolumne, I see everywhere the talus green with a close dense cover of this, the upper portion usually sharp against the wall and fan spreading out below.

- *Quercus californica*
 7800 ft.

Pond of rocks over Muir Gorge
(8400 ft alt.)

- Jeffrey Pine, 17 feet 1 inch
circ at 4 ft.

[thru Piper]
No. 3385 *Osthiocarpus cryptanthus*
Bracts pink-tipped, with
one slender tooth on each side
at middle. Calyx with 4
almost equal teeth. Corolla
whitish. Galesa pink, sacs
larger than deep, pink-tipped.

- Aspen, 6 ft. 2 1/2 at 4 ft - Plateau
above Muir gorge - Miss Wright.

No. 3386 *Ligusticum Grayi* C. & G.

No. 3387 *Jilisia* <sup>*leptalea* (Gray) Greene
ssp. *leptalea*</sup>
Fls. pale blue, whitish
throat. Same as in Dana
Park valley, glacial valley of
Rodgers Creek.

Table Lake and

to Pine Creek, July 22
(8400 ft.)

No. 3388. Umbellifer

Moist hillsides amongst
aspens & firs. Corollas white,
one with ^{white} 6-parts!

Taratology

No. 3389. *Pentstemon laevis* Gray.

Tufted plant with numerous
flowering stems. Corolla azure
blue with purple in throat.
Tube rather abruptly expanded
into throat. Herbage glandular,
especially above; corolla
glandular.

No. 3390. Umbellifer

Gymnopterus terebinthinus T. & G.

No. 3391. *Symphoricarpos mollis*
Mitt.

Table Lake and Pinto Creek

- From Minn Gorge Point down to Table Lake came over a steep rocky hillside. At top of this hill on the sloping plateau were low broad *Oreocetes vacciniifolia* (7500 to 8000 feet), ~~low~~ shrubs 4 to 7 feet high.

At bottom of the trail, near the lake, we passed through herbaceous vegetation to our shoulders or waists. Bracken Fern, Cow Parsnip, *Rubus nutkanus**, *Delphinium* over my head(!), *Circaea Pacifica* down to the ground, etc., etc.

On top of plateau were aspens, very white. Brimble

* = *R. parviflorus*.

July 22, 1909

, whiter than I have seen elsewhere.

- *Salix flavescens*, Table Lake, 16 feet high

No. 3392. *Aquilegia* ^{formosa var.} *truncata* ^{form.}

There is a form at higher altitudes, Cramer Creek etc with numerous stems, a more ^{more} compact plant.

No. 3393. *Delphinium*

Pleasant Valley (7000 ft.)

- *Pinus monophylla*.

Mr. Gleason brings up from Piute Gorge a branchlet. It is a hot place leading down to the hot hole, Pate Valley, in the bottom of the Tuolumne Cañon

- *Quercus chrysolepis*.

Allen brings from Pate Valley a branch from a large tree. This tree, one of the largest, stands over the hot-holes in the rocks where the Indians ground their acorns. Parsons

July 23, 1909.

spoke of the oak orchards there as a reason for this spot, Pate Valley, being a gathering place of the Indians. It is also very inaccessible which would account for its value, and there is plenty of game. On the side walls I saw the prints of many wild animals and especially their trail hollows in the dust-bottomed chaparral shrubs where bear had lain.

Pleasant Valley to

(Tivolium Co.) (7000 ft.)

No. 3394. *Rubus* (nut Canne)
Pleasant Valley. *parviflorus* Nutt.

No. 3395. *Lilium parvum* Kell.
Stalks 7 ft. high, 2 to as
many-flowered as in this
specimen. Red perianth seg-
ments, the lower $\frac{2}{3}$ yellow
with black dots. Segments
recurving, strongly so after
anthesis.

No. 3396. *Abies concolor*.
Low branchlets. Tree
20 years old. Fine here
200 feet high on gravelly
floor Pleasant valley
of lower branchlets -
Leaves larger than in Red Fir,
having a tendency to spread right
and left

Rancheria Mt., July 24, '09

(8500 ft.)

No. 3397. *Pinus monophylla*
Pinto Creek cañon low down
Mr. Gleason.

No. 3398. *Juniperus occidentalis*.
Branchlets from seedling
4 or 5 years old.

No. 3399. Composite - *Clachariaceae*.
Pleasant valley.

No. 3400. *Umbellifer*
Fls. white, very thick
in meadow. Pleasant
valley.

- Aspen, fine little grove
in Pleasant valley. One tree
5 ft 10 $\frac{1}{4}$ inches circ at 4 ft.
50 ft. h.

Rancheria Mt. (8500 ft.)
n. of Tuolumne River

No. 3401. *Stellaria longipes* Goldie.
~~*Grenada*~~

Stamens 10. Styles 3.

Petals white, bifid.
Pleasant Valley.

No. 3402. *Lappula velutina* Piper.

Flowers a most beautiful and
entrancing hue! Open Red Fir woods.

No. 3403. *Polemonium* ^{*pulcherrimum*} Hook.

Corolla pale blue with yellowish
eye, growing in pine woods where there is
no other vegetation or very little see p. 130.

No. 3404. Red Fir. Leaves in
top ^{short} 4-sided, so strongly

keeled on face and back,
very thick. Trunk so deep

dark red. Barked umbr

Lower leaves longer, thick
but not so strongly keeled,
glaucous lines more strongly
marked above than below.

Leaves not petioled, in-

July 24, 1909.

serted by a base which
is slightly dilated, a
little contraction just above
it. Leaves mostly curving upwards
even on lower branches. Leaves of
lower branches ^{than any other} more ^{nearly} round
- Aspen + Three modes of dis-
semination. Wind, stream-
currents, feet of birds.

Plenty Aspen on Rancheria
Mt.

- Muir says he tried to get
Wheeler to take a stand on the
Hetch-Hetchy question but Wheeler
said he had not made up
his mind. It was Muir's
opinion that he did not want
to risk offending some rich
man in San Francisco - it being
his business to lay bar money
all the while.

Rancheria Mt. (8500 ft)

No. 3404A. *Monardella odoratissima*
^{s. sp. pallida} ^{sth.}

Odor exceedingly heavy and strong, especially when bruised by the foot in passing over it.

Ranges up to 10000 feet.

Rancheria Mt. Corolla lobes lanceolate, 3 lower widely spreading ^(horizontally and) from each other. Two upper lobes vest, not divergent but

deeply bifid, not so deeply parted as lobes of lower lip. Corolla very pale lavender-white.

People of the Sierra Club trip, some of them, call it "Rocky Royal" though many know it isn't

Tulelake Co.
 July 24, 1909

Penny Royal at all. People will have common names. If they can't get the special name, they will transfer one from a garden plant. "Rocky Royal" might do as the plant is commonly most abundant on rocky drifts on mountain sides. Very abundant in open pine woods in rocky places. Also at higher places. Common everywhere.

Rancheria Mt. (8000 ft.)

- *Juniperus occidentalis*, 15 ft.
4 in. circ. at 4 1/2 ft.

- Forking of axis in Pinacras.
Forking in Tamarac pine doubtless
caused by winter injury to
leader, the rain congeals as
ice, the wind works
destruction easily, perhaps
helped out by snow and
low temperature. Branching
axis in firs also occur.

Not infrequently one sees
a large perfect fir tree,
Red fir seen today, in
which the axis runs
through unbroken to the
top. About the middle of
the crown springs out

July 24, 1909.

a lusty young secondary
axis, differing markedly in
bark character from the
main trunk which it
parallels and running 1/2
way to the top, counting
from the point where it
begins.

- Went out with Dr. Holman, his wife
and a young lady to the edge of the
Tuolumne Cañon to see the great
gorge. It is a fine new and interesting
on the way we saw a 4-pointed buck,
heard the grouse drumming and
afterwards saw plenty of them.

Rancheria Mt. (8000 ft.)
Tuolumne Co.

- No. 3405. *Dodecatheon* ^{Jeffreyi} _{Nov. 22.}
 Corolla rose-purple.
 Petals 4, but with 6 or 5 on same plant as the 40. This taken in Rancheria Mt. at a little springy meadow of about 2 acres on the slope, surrounded by Red Fir.
 Across the meadow were thrown two sheavers of this flower, which were very striking and beautiful.

We lunched, a party of us, under the spreading limbs of an Incense Cedar ^{here} which stood alone on the slope of the hill opposite the meadow.

July 25, 1909.

- No. 3406. *Nimulus* *tilingii* Regel var.
^{Corallinus (Greene) Gray. det. A. S. G.}
 Leaves remarkably round and thin. Growing in ~~the~~ wet meadows at the Rancheria Mt. camp. I think the herbage was not sticky, certainly not clammy as in the Lyell Creek species (no. 3355) which is quite distinct.

- No. 3407. *Castanopsis* *sempervirens*.

Overlooking Grand Cañon of the Tuolumne River.

- No. 3408. *Castilleja*, many
 (*miniata* Dougl.)

Rancheria Mt. to (7000 ft.)

stems (simple) from a large woody (but not visible) crown.

- The rocky cliffs at the upper entrance to Hetch-Hetchy, south side of the river, have a cathedral effect that is very different from Yosemite where the cliffs are so bare. Here the rocky cliffs are filled in between with trees and the black blocks of granite tapping one another on the cliffs as decorated with Mendocino in a most lovely manner. The decoration on one of the cliffs is most regular, blocks and round clumps of trees, blocks and round clumps of trees, rising in a seemingly vertical wall to the summit of the rock.

Hetch-Hetchy, July 25, '09

- Miller says: Poté Valley is a most delightful and entrancing spot. Its vegetation is beautiful. There is an oak there, 10 feet in diameter. The oaks are very fine. (This large oak is the *Quercus chrysolepis* of which Allen brought a specimen. There were pot-holes beneath this tree where the Indians ground their acorns. The mangamla growth on the side walls also gave them a food supply).

No. 3408A. *Abies concolor*.

I climbed about 50 feet up for these cones. Trail overlooking Hetch-Hetchy.

Hetch - Hetchy (3700 ft)

No. 3409. = *Lotus purshianus*
Nosackia Purshiana.

Bth. Dry floor, Hetch - Hetchy
 = *Lotus americanus* Bisch.

No. 3410. *Erythraea*
 Corolla coriaceous. (Deep pink
 red). Anthers coiled.

- *Acer macrophyllum*
- *Pinus ponderosa*
- *Librocedrus decurrens*
- *Heuchera micrantha*
- *Populus trichocarpa*
- *Pinus sabiniana*. Upper
 hot end of valley, north
 side rim, in rocky
 country. Also extending
 more or less along
 north rim and walls to
 west end where common
 on both walls.

July 26, '09

- *Quercus Kelloggii*. These
 trees give to the valley, a
 highly picturesque setting.
 My first view of the valley
 from the Rancheria Mt. trail
 showed green fields surrounded
 by scattered oaks and
 groves of pine here and
 there, especially along the
 valley walls.

- *Erodium cicutarium*. Lower
 valley meadows.
- *Sporogonium acantharium*.
 Lower valley meadows.

Hetch-Hetchy (3700 ft.)

- *Quercus chrysolepis*.

The walls of the valley are given more character by this tree than by all other species combined. First of all at the easterly end of the valley has a series of high cliffs, great rocks rising out of the wall, which are remarkable, unlike the rocks of Yosemite, for their vegetation. These rocks are set in a mass of oaks which give a character to the rugged strength of the rocks that is very very pleasing. Great rocks set in trees, rising

July 26, 1909.

out of groves - a most enticing scene. Further down the valley, westerly, are great granite walls, smooth towering cliffs like Yosemite and utterly devoid of vegetation, save for 1, 2, or 3 sharply defined bands of oak (*chrysolepis*) which run nearly horizontally, i.e. inclined upward easterly, across the walls, taking advantage of a rift or shelf in the mass of rock, a rift which runs with great directness, seemingly a straight line. This oak is mostly

Hetch-Hetchy (3700 ft.)

low. branching, or small, or
even bushy, but not the
Quercus vaccinifolia form.

- *Polemonium pulcherrimum* Hook.
Cont. from p. 116, no. 3403. See
vol. 23, p. 135.

July 26, 1909.

- *Eriodictyon glutinosum* Bth.
- *Asclepias mexicana* Dec.
- *Ceanothus cuneatus* Nutt.
- *Alnus rhombifolia*
- *Chlorogalum pomeridianum*
Six feet tall.
- *Eremocarpus setigerus*

Hetch-Hetchy (3200 ft.)

- Golden-cup Oak is a name for *Quercus chrysolepis* which George Frederick Schwarz likes very much. He thinks it very pleasing and very appropriate. I should shorten it to Gold-cup Oak.

- *Hieracium albiflorum* -
Black Oak opens.

July 27, 1909.

- The Black Cottonwoods in the valley are tall, very handsome and white-trunked in the moonlight. Why "Black Cottonwood"? I do not like the name. The trunk is whitish, not dark. The foliage or crown is dark not light-colored as in Fremont Cottonwood, yet it changes to silvery when the wind flows over it. Why not Silver Cottonwood? Or some other name suggested by the uses to which the wood is put.

Hetch. Hetchy (3700 ft.)

- *Libocedrus decurrens* is now steadily shedding its leaves, i.e. its branchlets which have passed usefulness. These come down in 1-jointed pieces, 2 or 3 or more joints, or little branchlets. *Juniperus occidentalis* has recently been shedding twigs $\frac{1}{2}$ or 1 to 4 inches long. Noticed this in Matterhorn Cañon.

- *Umbellularia Californica*, lower end. Schwarz says: I was riding along the trail and made inquiry of one of my companions concerning this tree. He crushed a bit and gave it to me saying: Smell the foliage, it is fine. I took a deep inhalation of it and it seemed suddenly to - next page -

July 27, 1909.

- *Lophanthus urticifolius* Bth.
- *Achillea Millefolium*
- *Oenothera* large-flowered biennial, same as in Yosemite. Very beautiful in moonlight. Opens in evening and closes in morning.

right back to the rear of my head. I nearly fell off my horse. In fact this happened several times before I recovered and I had to be helped down - George Frederick Schwarz, Hampton Court, Brookline.

Hetch-Hetchy (3700 ft.)

✓ No. 3411. *Salix lasiandra*

Typical foliaged trees near
rock dike across valley at
lower end.

Quercus chrysolepis. Large
trees on rock dike, lower
end valley. Trunks very
short or almost none,
main branches several
and trunk-like forming
crowns 40 to 50 feet
across

- *Chaenothus integrissimus* K. & A.
Rare in valley, common on walls.

- *Chlorogalum pomeridianum*
5-9 feet high. Fls.

open at sunset.

July 27, 1909.

✓ No. 3412. ~~*Clarkia virginica*~~
~~*Godekia williamsii*~~ B. & H.

✓ No. 3413. *Philadelphus lewisii*
Pursh var. *californicus* Gray.

✓ No. 3414. *Viburnum ellipti-*
cum? Leaves only.

- Parsley. Species with white flowers,
low plant, tuberos, same as
no. — Lower meadows
full of it in places.

- *Streptanthus orbicularis*

- *Brickellia californica*

Polunna Co.
Hetch-Hetchy (3700 ft.)
S. acutus Muhl.
Scirpus occidentalis Chase.

✓ No. 3415. Sedge

✓ No. 3416. Rush *Juncus dubius* Engelm.
Det. F.V.C.

✓ No. 3417. *Emmalus* *Euarras layneae* Greene.
Corolla crimson, a ^{seeb} red band
running out to tip of each lobe through
the lobe, the lobe usually notched.

✓ No. 3418. Phacelia. Dry floors.

P. virgata Greene, varying towards *P. frigida*
Greene = *P. magellanica* var. *heterophylla* (P.)

✓ No. 3419. *Lonicera interrupta* Benth.

Stems twisting around each
other and so forming up-
right supports in middle
of bush for flowering
spikes, lacking other
support.

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- *Torreya californica*. A few
trees on south wall
winterly from Colonna Rocks.
- Coll. by Mr. Pohlmann.

- *Azalea occidentalis*. In fl.

- *Euthamia occidentalis*

- *Artemisia heterophylla*.

Lindl.

✓ No. 3420. *Pentstemon breviflorus*,
Bushy 3⁴/₈ ft. high. Woody
stems at base.

✓ No. 3421. *Lotus crassifolius* Greene.
4 ft. tall. Dry floors,
north side of valley.

Hetch-Hetchy (3700 ft.)
Lower valley!

- ✓ No. 3422. *Mimulus*
moist places in woods.

Mimulus moschatus var. *longiflorus* Gay. Det. A. L. G.

- ✓ No. 3423. *Trifolium obtusiflorum*
Hook.

- ✓ No. 3424. *Collinsia tinctoria* Hartw.

- ✓ No. 3425. *Agoseris grandiflorum*
Troximon
moist meadows.

- ✓ No. 3426. *Clematis ligusticifolia* Nutt.
Climbing high over bushes.

- ✓ No. 3427. *Godetia englemanni*
Jepson. Corolla pure purple-
crimson.

- No. 3428. *Heterocodon*
moist meadows.

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- *Prunus demissa*. Several individuals at lower end of valley in middle of meadow. They stand a little apart, have taken on a tree form and resemble closely a narrow-crowned and rather young plum tree in an orchard. They are about 13 to 18 feet high, with narrow crown, trunks 3 to 4 feet tall, and each tree with a colony of young bearing bush-like individuals about them, 3 to 5 feet high. Diameter 3 to 5 inches at 2 ft. above the ground.

Hitch-Hitchy (3700 ft)

- *Rumex crispus*
- *Erodium cicutarium*, near Soldiers Camp
- *Rhus diversiloba*.
No. 3429. Not used.
- ✓ No. 3430. *Geranium carolinianum* L.
- ✓ No. 3431. *A. subsecundum* (Link.) Hitchc. (det. B. Crampton, 1972) Meadows, lower end of valley.
- Agropyron caninum*
- ✓ No. 3432. *Lythia angustifolia* Nutt. Meadows, lower end of valley. (= *W. foliosa* Congdon).
- ✓ No. 3433. *Bromus carinatus* H. & A. Grass Meadows, lower end of valley. *Bromus marginatus*, var. *seminudus*.

July 27, 1909.

- Came down the trail into Hitch-Hitchy with John Muir. We lunched together on the banks of Rancheria Creek. He doesn't like the folk names even where they do not misrepresent botanically. E.g. "Digger Pine!" "No, call it Sabine Pine, after Dr. Sabine." Yet if Muir went into the foothills and said Sabine Pine to the settlers no one would know what he meant. - But the settlers know what I mean in plant names, since I speak their language.

Hetch-Hetchy (3700 ft.)

- Last night, Allan Chamblain of Boston, former President of the Appalachian Mountain Club, told the Sierra Club sitting at their camp fire of the work, field-trips and outings of that organization. He referred especially to the preparations against rain which have constantly to be made against rain, not only in the way of tents but especially in the way of clothing, waterproof slickers, etc. This constant preparedness for rain and wet. The cooking at their outings is done

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under a tent. - Here in the Sierra on the contrary we have been camping under a cloudless sky for a month, the days clear brilliant and even, running on without change, always cool, invigorating, bracing - no lassitude or weariness from heat which never comes save perhaps when on the trail in the middle of the day.

This Hetch-Hetchy is a most delightful and cozy camping spot, the wind rustling through the great oaks and pines, the woodpeckers calling in the oaks just as they called when I

Hetch. Hetchy (3700 ft.)

was a boy and thought
then as I think now
that there is no more
alluring and gratifying
woodland sound.

✓ No. 3434. Grass. *Phleum pratense*
Meadows lower end valley

No. 3435. *Eriogonum roseum* (1855)
Black Oak opens, lower end valley
(*E. virgatum*, 1856)

No. 3436. *Lesdingia*
Black Oak opens lower end valley
[data Gray]

✓ No. 3437. *Monardella lanceo-*
Mustang Mint. Black
Oak opens lower end
valley.

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- Allan Chamberlain says
there is a Forest Service map
showing in outline the
national forests of the U.S.
and at least most of the
national Parks and
monuments. He speaks
of the Pinnacles, Muir Woods,
Lassen Butte and one other
national monument in
California. I do not
believe that our people
in California know any-
thing of most of these
national monuments nor
as a consequence appreciate
them. They must be awakened
to their possibilities and
importance.

Hetch-Hetchy (3700 ft.)

- *Pseudotsuga taxifolia*.
- Black Oak at Soldier's Camp,
17 ft. 7 in. circ. at 4 ft.
Belts 95 and 105 feet high.
- *Aquilegia truncata*, in fl.
- *Libocedrus decurrens*, tree
on trail within about 100
yds. westward from bridge
over creek at
Falls, 21 ft. 6 in. circ. at
4 ft., 100 ft. high.
- *Rhamnus californica*
- *Vitis californica* Bth.
- Black Oak, numerous seed-
lings.

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- *Eriogonum canadensis*
- ✓ No. 3438. *Rosaceae*, *Prunus* ^{*subcordata* *Pav.*}
Black Oak opens, lower end valley
- ✓ No. 3439. *Rhamnus* ^{*yosemiteana* *EB. Wolf*} *californica*
Black Oak opens lower end
of valley. This is an intergrade to *R.*
rubra Greene var. *obtusissima* Jepson.
- ✓ No. 3440. *Rosa californica* C. & S.
Upper valley.
- ✓ No. 3441. *Gayophytum* ^{*mun.* *F. & G.*} *ramosissim-*
Petals pale pink, claws yellow.
Black Oak "opens", upper valley,
but all over valley floor,
except in moist meadows.

Hetch-Hetchy (3700 ft.)

Floribundus var. *subulatus* Gault. Det. A. S. G.No. 3442 *Mimulus*. Black

Oak opens, upper valley.
 Corolla clear yellow, the $\frac{1}{2}$ folds
 on lower side throat running
 to the sinuses of lower lip.
 Reddish brown dots in throat
 on lower side. Throat not very
 wide. Lobes spreading at nearly
 right angles. Herbage clammy.
 Calyx brown-dotted, its
 teeth equal.

oblongum B. & H.

No. 3443. *Trichostema*
 Two pair petals spreading
 laterally, oblong, the lower
 pair slightly larger,
 purplish blue. Middle or
 5th lobe (middle lobe of lower
 lip) in usual position,

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paler than lateral, the limb
 concave or saddle-shaped with
 one small obscure tooth on
 each side, narrowed to a base
 which is purple-dotted.

Stamens curving upward and
 outward, the anthers standing
 over the cupped middle lobe.
 Tube very slightly retro-
 curved. - Black Oak opens,
 upper valley.

- *Gomphocarpus* *cordifolius* Gray.
purpureascens
 Leaves ovate-lanceolate,
 sessile with subcordate
 base - Black Oak opens.
 - *Asclepias speciosa* Torr.

Hetch. Hetchy (3700 ft.)

- No. 3444. *Pentstemon breviflorus* Lindl.
 Upper lip plane, arching over the throat ^{its upper portion} slightly, the back strongly ridged, the ridge ending in an apiculation just below the sinus of the notched tip of the lip. Three lower lobes divided nearly to throat, as long as upper lip, recurving. Corolla dull white with some purplish lines and markings.

- No. 3445 ^{*Linanthus*} *Julia ciliata* (Bth.) Greene
 Black Oak opens, upper valley.

- No 3446. *Cichori*.
 Ligules pale blue.

July 29, 1909.

- No. 3447. *Ranunculus californicus*
 var. *orsusulus* Jeps. Benth.

- No. 3448. Grass.
 = *P. lanuginosum* Ell. var. *fasciculatum* (Torr.) Horn.
^{Beecher Grampson 1913} Hetchy
^{*Panicum pacificum*}
 No. 3449. *Julia glaberrima* (Gray) A. N. S. P.
^{*allophyllum integrifolium* (Gray) Chase}

- No. 3450. *Trillaria micrantha* Heller

- No. 3451. Umbellifer.
Angelica breweri Gray.
 No 3452. *Arctostaphylos*
 Berries white, translucent-luculent, ripe
 = *A. mariposa* var. *viridis* Jepson.

- No. 3453. Composite:

- No. 3454. *Ribes* ^{*roezlii* Regel. not R.} *lanatum* Greene
 Make pie and jelly from berries.
 I have never seen goose-mat.

Hetch - Hetchy (3700 ft.)

berry bushes so loaded
as these. The branches were
quite borne over with the
weight of the berries. Bunches
full and bags-full were quickly
gathered and taken into
camp for pies and jelly.
Unfortunately, ^{making} I didn't make
good specimens at the moment.

No. 3455. *Helianthus*No. 3456. *Cuscuta sulciculosa*
Dur. + Hilg.No. 3457. *Artemisia dracunculoides*No. 3458. *Libocedrus*

[See p. 171]

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- Erythraea variegata* Gray. = no. 3466. See below.
- Mercurialis L. var. canadensis* Britt. See no. 3465 below.

No. 3459. *Zygadenus venenosus*
no. nals.

Lower valley meadows.

No. 3460. *Ranunculus californicus* Benth.No. 3461. *Iris missouriensis* Nutt.
Lower valley meadows.No. 3462. *Rubus leucodermis* Dougl.
Fruits coll. in quantity
by members of the Sierra
Club.*Thalictrum caesium*No. 3463. *Meadow Rue* Greene
Black oak opens, lower valley.No. 3464. *Myrrhis arvensis* var. *villosa*
above.No. 3465. *Mercurialis venusta* Rob.
Lower valley marsh.No. 3466. *Erythraea venusta* Rob.
see p. 171. marsh.No. 3467. *Stachys torreyana* var. *scouleri*
see p. 157. marsh.No. 3468. *Hypericum torreyana* var. *scouleri*
see p. 157. marsh.No. 3469. *Potentilla gracilis* var. *hallsii*
see p. 171. marsh.No. 3470. *Collomia* Hetch. Hetchy.

Hetch - Hetchy to
(3700 ft.)

(ella)

No 3484. *Selinum capitatum*
8 ft. h. in marsh in first-
hillside valley on grade out

of Hetch - Hetchy. See p. 158.]

- No. 3471. *Salix* ^{*melanophylla Nutt.*} Hetch - Hetchy, lower
- No. 3472. *Ribes* ^{*amictum Greene.*} valley.
- *Hosackia* (see p. 157)

with pale yellow banner and
white large keel. *nevadense* Kell.

- No. 3473. *Ribes* Hetch - Hetchy
- No. 3474. *Parodiopsis grandiflora* Sm. Hetch - Hetchy
- No. 3475. *Erigeron diversiflorus* Tuck.
- *Cercocarpus* ^{*diversiflorus*} *parvifolius*, 15 ft. h.
No. 3476. *Sedge* ^{*Carex*} ^{*diversiflora*} Hetch - Hetchy. Lower
No. 3477. *Sedge* ^{*Carex*} ^{*diversiflora*} valley marsh...
No. 3478. *Grass* ^{*Agrostis*} ^{*diversiflora*} (scabrid). marsh.

No. 3485. *Minulus flourensii* var. *schubertii*
See page 158

Herbage very clammy
Common in open pine
woods near streamlets

Throat open
Cyperus aristatus

No. 3479. *Sedge* Hetch - Hetchy

No. 3480. *Euphorbia*, " " " cover valley.

No. 3481. *Salix*, " " "

Sequoia (Crocker), July 30,
'09.

No. 3482. *Minulus guttatus* DC.
var. *microphyllus* (Benth.) Griseb. Det. A. L. G.

Herbage glabrous.

Palate very much developed,
half-closing throat.

See p. 165.

No. 3483. *Boeleia montana* (Gray).

Corolla pale blue, the center
of lower lip white with
two purple dots at base.

Upper lip recurving, its lobes
parallel.

- From Hog Ranch to Middle Fork
Tulahoma River Bridge the forest
is mainly yellow pine, juniper
cedar, a scattering of black
oak and patches of sugar
pine.

- Cont. no. 3472. = *R. roezlii* Regel!

- " " 3480. = *E. serpyllifolia* Pers.

- Continued no. 3468. *Hypericum formosum*
H.B.K. var. *scouleri* Coville.

Achersons Creek to

- *Saxifraga peltata* - Tus-
sume River Bridge, middle
Fork.

- Mountain Nursery; comes in
at Carlson's Ranch & Acherson
Creek.

No. 3484. *Selinum capitellatum*
Wats. See 2 pp. back. p. 156.

No. 3485. *Mimulus* ^{*floribundus* var. *subulatus* Gray} See ^{Det. A. D. G.}
2 pp. back. See p. 165

No. 3486. *Heleium Bigelovii* Gray
Hetch-Hetchy to Hog
Ranch

No. 3487.

Hetch-Hetchy to Hog
Ranch,

No. 3488. *Polygonum*
^{*phytolaccifolium*}
Filling a little lakelet
just above floor of

Crocker's (Sequoia), July 30, '09

Hetch-Hetchy on trail to
Hog Ranch, say 4300 ft.

det.

No. 3489. *Nymphaea polypetalum* Engelm.
~~*Nymphaea polypetalum*~~

Hetch-Hetchy to Hog Ranch,
near summit of trail,
in a lakelet.

No. 3490. *Lessingia*. Hetch-
Hetchy to El Portal via
Crocker's.

No. 3491. *Solidago*. with 3490

No. 3492. *Aster*.

No. 3493. *Corylus* ^{*cornuta* var. *californica*} Merced
Big Trees. July 31.

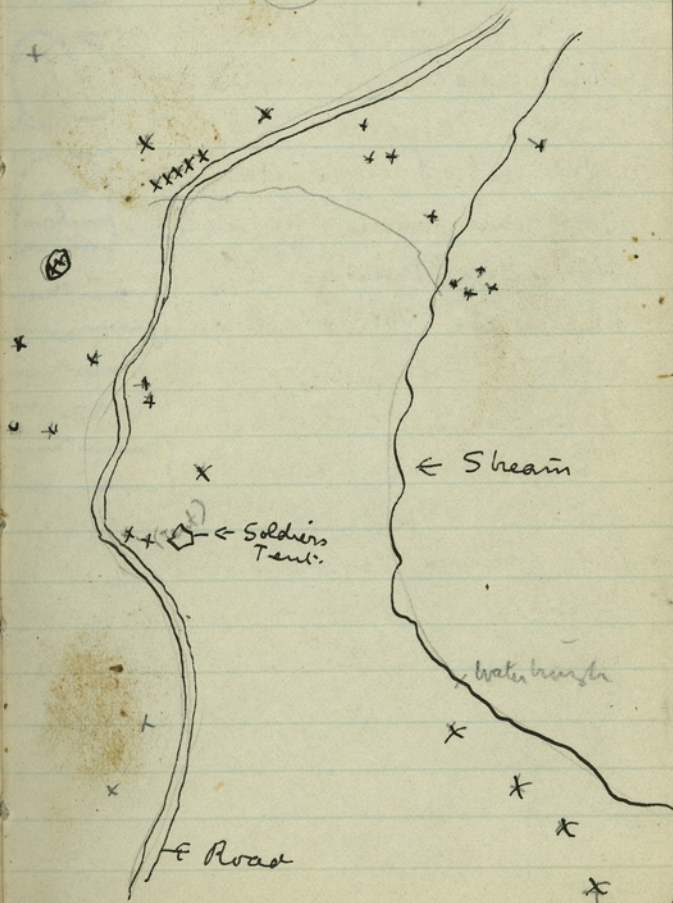
No. 3494. *Lilium washing-
tonianum* Kell.

Sequoia to Merced Big

- Big Tree. At the Merced Big Tree Grove I made a fairly careful count of the trees, plotting them for convenience on the opposite page. I included all trees that I saw. I should suppose three or four were rather small, few of them are really large-sized. The map is not accurately drawn but simply to indicate roughly the position

Trees, July 31, 1909

33



Merced Big Trees to

- *Saxifraga heltata* - Merced Big Trees, abundant.
- *Pseudotsuga taxifolia*, common and of large size, Hodgden Ranch to Hazel Green to Merced Big Trees and below.

El Portal, July 31, 1909

"On account of the unequalled character of the pines and firs in the Sierran forest - the first sight of the Big Trees may be disappointing. But association with the Sequoias does much for man. As the days in their company run fleetly by his appreciation continues to deepen and strengthen until the Big Trees are soon received into that splendid category which includes the rock of El Capitan, the wide level of the desert plain and the copper-colored flow

El Portal

of the Trinity twisting
among its tangle of
mountains, - W.H.J., old. mss.

[At Crocker's we had our last Sierra
Club camp-fire for the trip. There
were good-bye speeches by a great
many; then a wonderful violin
solo by Degrossi; and then the
the whole camp formed a
huge circle joining hands,
and with the moon above
the trees throwing great
shadows the Botany Man
reited with uplifted hand the
good night benediction of the
fairies in the Midsummer
night's Dream;
waving spiders come not here.]

July 31, 1909.

[nos. 3482, 3485. Mimulus.

These two grew together on
the pine plateau not far
beyond Hog Ranch towards
Hetch-Hetchy. A shallow
swale led a trickling
streamlet; in the borders
of it grew no. 3482.
in the muddy edge.

No. 3485 grew in the
gentle slope near
the streamlet under the
pines, lots of it. I have
apparently lost it, ^{the no. 3485} since
on going over the sheets
here at Berkeley, I
cannot now find it.

No. 3482 is numbered
correctly - I feel sure.
cont.

El Portal

cont.

My field notes say "glabrous" but it looked glabrous because so green (and so nearly glabrous), as compared with the other which I should say from memory was grayish and clammy. I made a point of distinguishing the two because they were common in one spot, of about the same size and the corolla of the same size.

No. 3482 has a curious calyx, upper side a scutellum-like development, the calyx otherwise nearly truncate, laterally a

July 31, 1909,

branch of hairs, one on each side. — This note, pp. 165-167, was written in Berkeley, Dec. 1909.]

I now find #3485. The nos. as verified are correct - Jan. '10.

St. Helena.

Aug. 5, 1909.

- *Salix sessilifolia*. Stone Bridge.
Tree 40 ft. h. & diam 8 inches.

-
- Towle, C. B. Prof., at Alturas, Nov. '06.
Cf. *Waltham Surv. Rep. Calif.* 1906, p. 126

- Lobb. coll. *Leucothaea Davisiae*.
Cf. *Syn Fl.* vol. 2. pt. 1. p. 34.

-
- Orcutt & Greene. Cf. *Orcuttia greenii*.

Cf. *West. Am. Sci.*, no. 93,
p. 62 (Sept. 1900).

"LOTUS HUMILIS Greene pit 2"
140."
That is one opinion of
Pittoma.

1909.

- Teratology - L. Daniel in *Trav.*
Sci. Univ. Rennes, 5 (1906), no.
2. pp. 81-98.

Berkeley

Planting Seedlings.

- Charter Hill Plot. Took up a lot of *Cupressus goveniana*, *guadalupensis*, *sargentii*. Also Bishop Pines (*Governia* seed). Some Oregon Ash and *Calycanthus* (Vacaville). Oregon Ash St. Helena seed. But see Field Book.
- Nov. 4, 1909. Got 'em up* early which is a fine thing. Gentle soaking rains all the time now. Put out some Bishop Pines in March after rains quit. The majority survived! and will grow.

* that is the seedlings were planted early.

1909.

- *Minulus layneae*, Green, an excellent species which will ever be a memorial to the one-time friendship between its author and the lady to whom it was dedicated, Mary Layne-Curran-Brandege.
 - *Leptotaenia californica*. Cf. J.W. Kinsling, letter file, 1909. (cf. *Texas Carr.* 5:470).
-
- Cont. no. 3470. *Collomia grandiflora* Dougl.
 - Cont. no. 3467. *Stachys albus* Gray.

Berkeley

- Bolander, H.N. was careful about his locs. We have not had to question them as a general thing; or not at all that I recollect now. *Premna californica* he obtained in Lake Co. and it was not rediscovered for forty years.

Oct. 31, 1909.

- Applegate, ^{Elmer} He is rather spare, light-gray mustache, thin gray hair nearly bald on top, spare face, rather refined face, pleasant, modest manner. Says he has collected in that ^{one} region for 20 years. Was with Coville in the Cascades two years, from the Klamath to the Columbia River. About Crater Lake got 12 or more new species. One new *Castilleja* named by Greenman. *Collinsia mazama* is a fine thing, its flowers like the blue of Crater Lake! It is the flower of the Mazama Club. See 12 pp ahead

Moraga Ridge

- Bot. & trip over Thorn Hill (Kohler Creek cañon) to San Leandro Cañon and up to the top of Moraga ridge. As one stands on the summit and looks west one sees that the east slope of the Pala Ridge (betw. San Leandro Creek and Redwood Cañon) is covered from bottom to summit and end to end with the following species:

Redwood, about 45%	
Live Oak, Umbellularia, 30%	
Madroña	10%
Brush	15%

The Madroña on the east slope

Oct. 9, 1909.

of Redwood Peak ridge is in similar case. The covering is about the same.

Fire has been over the Knob-cone territory. Half the trees are dead and present a remarkable sight with their opened canes. The fire has been within a year.

The largest living tree measured 25 feet high, 4 ft 6 in. at ground, 3 ft 5 in. at 4 ft. above ground.

On this ridge are a half-dozen or more small redwood clumps, the tallest 16 ft. h., all

Berkeley

(Moraga Ridge)

in one place, about midway
of area, west-slope on
the north side of a lateral
ridge but very near the
summit of this lateral
ridge. Fire-injured.

Stump-sprouting - Moraga.*Castanopsis chrysophylla* var.*Vaccinium ovatum* ^{ph.} minor!*Arctostaphylos tomentosa*
= *A. glandulosa* !!No. 3495. *Chimaphila*. MoragaNo. 3496. *Pinus attenuata*, leavesNo. 3497. *Vaccinium ovatum*.
^{Oakland Hills} (Thorn Hills)No. 3498. *Quercus agrifolia*, on

the Moraga ridge, the result
of fire conditions. Stump sprouts,
young.

Sept, 1909

- The entire leaf and the
toothed leaf of *Quercus*
chrysolepis side by side
on the same branchlet
is so incredible that
unless one sees it - he
would naturally doubt.
You ought to have a
photograph of such a
thing for evidence! -
Prof. E. W. Hilgard.

No. 3499. *Amelanchier* ^{pallida} ~~alnifolia~~
^{var. subintegrifolia japon.}
folia Moraga Ridge, northerly
end. (500 numbers skipped).
No. 4000. *Pinus* ^{attenuata Lemmon} ~~tuberculata~~
See p. 175. Moraga Ridge

Berkeley

- *Sequoia sempervirens*, fasciated, stem $1\frac{1}{4}^{\text{in.}} \times 3\frac{1}{4}^{\text{in.}}$, expanding suddenly into a fasciation $6\frac{1}{4}$ inches wide, about $\frac{1}{4}$ line thick except on the 2 edges which are rounded and $\frac{1}{4}$ in. thick. This thin structure 8 in. long and surmounted by a great irregular crest or mane of shoots up to 12 inches long but of every ^{less} length, and not obviously fasciated to ribbons $1\frac{1}{2}$ inches wide. - Said to come from Pescadero. Sept, '09. Yes!
- from Mr. J. T. Bloom, Pescadero. California, See letter file

1909, Sept.

- *Vallisneria spiralis*, imported and planted at Newark by Morse Seed Co, teste A.W.
 Links of the company, Sept. '09.
- *Sequoia gigantea*, seeds from Mariposa Grove, J.M. Hutchings, counts of cotyledons as follows:
 5, 4, 4, 4, 4.
- *Sequoia sempervirens*, seed from Wilbur, Bolton, 1904, cotyledon counts as follows: 2, 2, 2, 2, 2, 2, 2.
- California Botanists. - Thayer, Emma Homan. Wild Flowers of the Pacific Coast. 24 full-page plates drawn from nature and beautifully colored. Folio. New York, 1887.

Berkeley

- Monterey Cypress is same as Lebanon Cedar and grows also in Japan - El Monte Guest Book. A curious error. Monterey Cypress belongs to California and to California only. It is our own as much as the Sequoia gigantea. This attempt, for some years, to share our tree with Palestine or Japan is the more remarkable in that it is usual for our people to be excessively proud of the peculiar natural wonders of the state - W.L.J. in litt. to Manager Hotel El Monte.

Sept. 1909.

- Madroña -

Dedicated

to the

Madroña

a tree freighted with
biological interest and
yielding to none other
in sylvan charm.

- Sequoia gigantea, climate.

See Letter File, Cal. Trees,

1908, L.L. Davis.

- California botanists. Consult
Pritzel's Thesaurus, Jackson,
etc for bibliography of Seeman,
etc, etc.

Berkeley. Oct 30, 1909

- Applegate, Mr. ^{Elmer I.,} called today. Graduate Stanford 1905, roommate of Frank Anderson geologist. His people came to Oregon in 1843, down the Columbia in canoes, to settle in Polk Co. His Grandfather settled in the Umpqua country in 1846. His own immediate family at Klamath Falls for 20 years. His grandfather explored but did not live on the Applegate River. Says *Pinus attenuata* is on Mt. Williamson southerly from Hazel Dell. [It is the most northerly loc. known to me.] No intervening stations known to Applegate (towards Shasta Region). See 12 pp. back

Berkeley, 1909.

Trees of California - continued from 4 pp forward!

- Wood qualities of the species.
- Heterophylly (*Sequoia*, *Valley Oak*, etc.
- Geographic distribution of our genera.
- ^{sub} Alpine trees.
- Tap roots of trees. Cf F.B. 5, 185.
- Temp. & rainfall at the Big Trees.
- Sugar from Trees. See Skinner File, 1910. Abietine etc.

- Herre, Dr. Took his degree at Stanford. Came in ^{Ph.D} ~~to~~ also just now. 5 ft. 8. Brown eyes. Smooth face. Taught in San Jose H.S. Has been at Reno with Kennedy in some capacity. Author of a Lichen flora of the Santa Cruz Perim. in Wash. Acad. Sci. - [June 27, 1910.]

Berkeley

- Paleobotany, D.H. Scott, on the present status of paleobotany, in *Progressus Rei Botanicae*, reprinted in *Smithsonian Report*, 1907, p. 371.
- *Calycanthus*, reputed poisonous by Chesnut, Eastern species. *C. occidentalis* sent by J.W. Thomas, U.S. Forest Service, S.F., material from Trinity (Nat'l. For.) as poisonous to cattle, there being complaints of it by stockman evidence. But see his letter in *Jull. File*, 1907.

August, 1909.

- Joseph Saunders is a student, now at the beginning of senior year, who has been working his way through college. This August he returns after a year spent on a timber claim in Mendocino. He has tried to get work ^{here} in connection with this ^{timber work} but failed and is going off to earn money. The California Baptist College at Highland Park, East Oakland, offered him \$15⁰⁰ a month and board to teach $\frac{1}{2}$ day each school day in the month!

Am. much interested in the genus *Andropogon* and did good work on it.

Berkeley

- *Torreya californica*
When a forest fire runs rapidly over a Nutmeg tree it will not kill back of the branchlets, and new foliage will start from the trunk and all the branches: -

Joseph Saunders,
Comfort P.O.
Mendocino Co

- *California botanists* - see reference to Purpus' collection in Sierra Nevada in one of the Refs. to Literature in Schimper, Plant Geography. Also Ref. to H. Behr.

August, 1909.

- Trees of California
There are certain topics which are "left over" after finishing my Trees of California which are available for later uses.

(a) Relationships of the Californian Flora - Tan Oak, Castanopsis, Chamaecyparis.

(b) Desolation of the Siskiyou by fire.

(c) Shrub form in the chaparral; forest form in valley. Cf. Islay?
Is not *Quercus sadleriana* a chaparral form of which the forest form has disappeared? Consider its stump-sprouting appearance.

Cont. 4 pp back

Berkeley

- California botanical explorers. Mayr visited Sequoia groves. Wald. Nord. Am. p. 343 (1890) as cited in Elväs & Henry, vol. 3, p. 705, Trees Great Brit.
- Parry, C.C. See Parish, Plant World, vol. 12, p. 158 (1909).
- Xantus, J. G. Proc. Phil. Acad. Nat. Sci, p. 80 (March, 1863).
- Madroña, etc. By D.T.C., S.F. (A. Roman & Co). 1876. 16 mo. (524 p.)
Taken from Timby's Cat.
- *Quercus agrifolia*. The dark crowns in March covered with soft garment of new yellowish green foliage which hides the old leaves beneath, which now fall away.

August, 1909.

"Pioneers and explorers considered the study of trees a fine art". By this means they always judged the quality of the soil, and knew at a glance by the growth that stood on it the character of any piece of land. The diaries of all that old school of western adventurers contain frequent mention of trees which were an almost infallible criterion of the soil beneath. Washington had a keen eye for trees - as for everything else - as illustrated in the journal of his trip down the Ohio River in 1770" - Historic Highways of Am., v. 6, p. 61 (Hurlburt).

Berkeley

- Portola. Morning Times, San Jose, Apr. 6, 1909, copied from Town Talk, says "Portola did not discover San Francisco Bay. Possibly Bay was seen by soldiers of the first Portola Exped. 1769. Bay discovered by Lieut. Pedro Fages in 1772. Portola saw the Bay in 1776 when coming north to establish the Presidio de San Francisco; there is no record he saw it before this. - Abstract.

1909.

- "Civilization rests upon dedicated lives", p 172
 "Where little money is, there often appears a kind of compensatory devotion", p. 128
 - Life of Alice Freeman Palmer by George Herbert Palmer
 John B.
 - Trask, ^{John B.} California Scientist. Cf Kellogg's sketch. See General Index in U.C. Library sub Albert Kellogg; v. 6, Cal. Acad. Sci. ¹⁸⁹⁹ July 21
 - Californian botanists; cf "List of writings of Asa Gray", pp 38-42.
 - Gregg, Dr. died in Cal. 1850. cf Gray, Pl. Wright, p. 6.

- Valley Oak, large trees
See "Teheema Co." in separate
file, p. 5.

" Stewart in letter file,
re Visalia Oaks

" Pacific Rural Press, 1903
bar data.

" Field Book, May 13, '03
for Huey Oak.

- Valley Oak, Pilkington
says none in Santa
Cruz valley.

- Apple-pine. What is it?
Goldsmith says it is a name in
use in southern Sierras for a
variety of one of the pines
with apple-like odor to wood.
Some woodsmen say it is a variety
of Yellow Pine, some say Sugar Pine.
Goldsmith inclines to latter view.
- Jan. 24, 1907.

- Spool No 5.

No. 1. Yellow Pine trunk 6 ft diam
11 - $\frac{1}{4}$ 5. Hg branch.

No. 2. Two Yellow Pine & forest of
Incense Cedar & Black Oak
11 - $\frac{1}{50}$ 4 ft. & 3 ft. trees.

No. 3. Sugar Pine 11 - $\frac{1}{4}$ 5. Forest of
5-foot tree Yellow Pine, Incense Cedar

No. 4. Meadow near Tule River middle
No. Park, Yellow Pine, young & old. and,
cattle grazing under forest Service permit.
11 - $\frac{1}{4}$ 5

No. 5. Yellow Pine. Mr. Thatcher, 5 1/2 ft diam.

No. 6. Yellow Pine forest in background. 11 - $\frac{1}{4}$ 5

No. 7. Yellow Pine, 5 ft. & 6 ft. diam. Miss
T. 6 Yellow Pine & Incense Cedar in
rear.

No. 8. Yellow Pine & Incense Cedar in rear

No. 9. Yellow Pine, near Big M.

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From next page

- no 7. 11 - $\frac{1}{50}$. Red Fir
 Kaibab m. Schwarz.
 2 $\frac{1}{4}$ - 2 $\frac{3}{4}$ ft diam.
 no 8 11 - $\frac{1}{50}$ Jeffrey Pine, Kaibab
 m. 4 ft diam 115 ft. h.
 no. 9, 11 - $\frac{1}{38}$ Jeffrey Pine
 turning into yellow. 2-3 ft
 diam. 100 feet. h.
 no. 10 Hatch. Hetchy Falls
 11 - $\frac{1}{45}$. Manzanita, a
 little Incense Cedar &
 Maple.

Spool no 4.

- no. 1 Pinus monticola Hetchy
 Creek, 15 ft 3 in at 4 ft
 75 ft. h.
 no 2. Pinus Puro. Tamarac!
 Hemlock! 11 - $\frac{1}{50}$
 no 3 11 - $\frac{1}{50}$ Hemlock 55
 ft h. Bayview Lake
 Smedley to Red Lake
 no 4. 11 - $\frac{1}{38}$ Rodgers Lake
 Tamarac, Hemlock
 no 5 11 - $\frac{1}{50}$ Snow avoidance
 windrows, Tamarac, Young
 Hemlock above which build
 down & let the snow pass
 over
 no. 6. 11 - $\frac{1}{38}$ Aspens. Mr. & Mrs
 Whitman. Dr. Sutherland
 Trees 50 ft. h + 3-5 in diam
 Pleasant Valley

Pinto Road

Road not

No 1. Int. Clark $\frac{4}{13}$ — $\frac{1}{25}$
 Red Fir, Jeffrey P., aspen foreground

No 2. Jeffrey, 4 trunks, aspen in
 background $11 - \frac{1}{12}$

No 3. Aspen Lake Wooded $11 - \frac{1}{12}$

No 3. McClure Woods $16 - \frac{1}{12}$
 (Lahar) Juniper & Tamarac on granite
 base

No 4. →

No 5. McClure Park towards $11 - \frac{1}{50}$
 all Tamarac

No 6. Albicantus in $11 - \frac{1}{75}$
 Vogel's Pass
 10 700 feet

Road 2

No 1. Tamarac $11 - \frac{1}{38}$
 Alb. Tamarac foreground, Albicantus
 in side net

No 2. Two Redwoods, Canadian Tamarac
 Tamarac ^{and alb. granite} $11 - \frac{1}{75}$
 a little vertical

No 3. Arbutus $11 - \frac{1}{50}$
 Clear off Tamarac in
 sharp line, Aspen corner
 in

No 4. White bark Pine, McClure $13 - \frac{1}{50}$
 also 3325 ^{and Lyell} 3332 plants

No 5. Little ^{Lyell} $11 - \frac{1}{50}$

No 6. Alpine Hemlock color
 nearly as term by Rockslide
 Lyell $11 - \frac{1}{75}$

no. 11 - $\frac{1}{50}$ Salix argentea

no 8 11 - $\frac{1}{50}$ " " Lyall creek

no 9 11 $\frac{1}{50}$ " " "

no 10. Uncan Peak, Fairview
Dome, Tamarac Pines only
In flat 2 miles below
Soda Springs

Spout 3

no 1. Tuolumne R. Glaciated slope
Tamarac Trees 11 - $\frac{1}{50}$

no. 2. Tuolumne at Conner Creek

Tamarac Pine, some Hemlock 11 - $\frac{1}{45}$

no 3. Jeffrey Pine on Skyline
Conner Creek 11 - $\frac{1}{45}$ (ascend)
Tamarac + Juniper

no 4. Tamarac Pine Red Fir Silver Pine
Ragged Peak left foreground
Lyall Thicket in distance
11 - $\frac{1}{45}$

no 5. Silver Pine roots on

Addresses

- Geo. R. Shaw, Boston (int. in
pines, making coll, gave up archi.
Married one of the Honeywells
- Allen Chamberlain, Boston.
- Miss Harriet Monroe, Chicago
- Mr. & Mrs. Whitman, Boston.
- Mr. George Frederick Schwarz, Hampton
Court, Brookline.

ledge. also Hemlock. Return
Creek - Matterhorn Cairn Dend.
 $\frac{1}{3}$ - 32

no. 6. Pinus monticola with
preced. same time

75 ft. h., 3 $\frac{1}{2}$ ft diam

no 7 - 11 - $\frac{1}{45}$ Tamarac + Hemlock
 $\frac{1}{45}$ Dend. Cairn & Matter
horn Cairn

no 8-9. Hemlock. Matterhorn
from Return Lake Pass 32 - $\frac{1}{2}$

Subjects for students.

- A study of very young seedlings of native conifers in order to determine their characteristics for purposes of differentiation.

483 = 1 doz = \$4.50 Sadler, 1907.

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1907

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